



**THE PRESIDIO OF SAN FRANCISCO
RESTORATION ADVISORY BOARD**



FINAL REPORT



**Twenty Years of Public Participation 1994-2014
in the Environmental Cleanup of Our New National Park**

Prepared by:

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Presidio of San Francisco Restoration Advisory Board

Prepared for:

The Presidio Trust

National Park Service

California Department of Toxic Substances Control

San Francisco Bay Regional Water Quality Control Board

San Francisco Bay Area Community

Presidio of San Francisco Restoration Advisory Board Final Report

Presidio of San Francisco Restoration Advisory Board Community Members Final Report Committee

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Title page: aerial photograph from Presidio Trust website showing Presidio of San Francisco with Golden Gate Bridge and Marin Headlands in background

Photographs by Mark Youngkin unless otherwise specified

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Coat of Arms of Royal Spain image adopted for heraldry purposes by the U.S. Army while stationed at the Presidio of San Francisco



"Post to Park" image created by the National Park Service for a poster commemorating the Presidio transition ceremony on October 1, 1994

Preface

This final report tells the story of the Presidio of San Francisco Restoration Advisory Board, or RAB, a citizens' committee that functioned from 1994 to 2014. The role of the RAB was to provide advice and act as a forum for public participation in the environmental cleanup of the Presidio, a former U.S. Army base that became a national park in 1994.

During those two decades, we had the privilege of witnessing and participating in the transformation of the base into spectacular parkland and doing our best to represent the public interest in advocating a thorough environmental cleanup appropriate for a national park.

The Presidio RAB, one of more than 300 at military bases nationwide, was formed by the Army in 1994. It was retained by the Presidio Trust, a public agency created by Congress, after the Trust took over the cleanup in 1999. In 2014, we voluntarily disbanded because the remediation project – including programs to address petroleum contamination, hazardous substances and lead-based paint in soil – was certified by regulatory agencies as essentially complete.

This report has two purposes. The first is to document our work and describe the accomplishments of citizen participation in the successful cleanup. The second is to outline some of the procedures we followed that may be useful to other citizens' groups engaged in a public participation process.

This report was written entirely by citizen members of the RAB. It is not meant to document all aspects of the environmental cleanup, but rather is intended to illustrate citizen participation and contributions. We have tried to make each chapter self-explanatory, so that readers can either read the report sequentially or choose the chapters of greatest interest to them.

As we adjourn on April 8, 2014, we feel confident that visitors to this new national park will enjoy a safe environment now and in the future.

Community Members
Presidio of San Francisco Restoration Advisory Board



Clean closure (excavation) of Army-era landfill at Presidio's coastal bluffs in 2007

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Report Summary

The Final Report of the Presidio of San Francisco Restoration Advisory Board (RAB) describes the work of a volunteer citizens' board that operated from 1994 to 2014 at the Presidio, a former U.S. Army base that became a national park.

The purpose of the RAB was to provide citizen advice and a forum for public participation in the cleanup, also known as remediation, of environmental contamination at the Presidio. In 2014, the Presidio RAB voluntarily adjourned, or disbanded, because the environmental cleanup was essentially complete.

The cleanup of petroleum contamination, hazardous substances in landfills and other sites, and lead-based paint in soil was begun by the Army and completed between 1999 and 2014 by the Presidio Trust, a federal agency created by Congress in 1996. Because of its long history as a military base, the Presidio contained dozens of sites that required removal or containment of contamination under present-day regulatory standards to protect human health and ecology.

The purpose of the report is to document the history of the board and the accomplishments of citizen participation in the successful cleanup. The report was written by citizen members and is not intended to describe all aspects of the environmental cleanup.

The Presidio RAB had two principal accomplishments. The first was to provide effective citizen participation and advice in the remediation process during the 20 years of the board's existence.

The second accomplishment was to contribute to bringing about a thorough cleanup of contamination suitable for a national park. RAB citizen members believe their advocacy and public outreach supported the decision-making agencies in achieving a more extensive remediation than would otherwise have occurred.

In the Presidio's cleanup, most of the contamination was removed by excavation instead of being contained in place. The result was safe and unpolluted parkland, with greatly reduced requirements for future contamination monitoring and very few restrictions on land use by the park's several million annual visitors and the people living and working in former Army buildings. In addition, the clean closure, or excavation and removal, of 12 large former waste landfills, which was strongly advocated by the RAB, allowed the restoration of a dozen areas of natural habitat in the park.

The 1,491-acre Presidio is in the northwest corner of San Francisco. After it was closed as an Army base in 1994, it was transferred to the National Park Service under a 1972 law establishing the Golden Gate National Recreation Area. The National Park Service and Presidio Trust jointly manage the Presidio.

The RAB was founded by the Army in 1994 and was one of more than 300 such boards at active and closed military bases nationwide. Its membership was a combination of individual citizens, known as community members, and representatives of agencies concerned with the cleanup. A total of 82 community members and 49 agency members served on the RAB during the 20 years.

Contamination left in Presidio soil and water from decades of Army activities included petroleum from vehicle and aircraft fueling stations and heating-oil pipelines; chemicals and solvents; lead and other harmful substances in landfills, former shooting ranges and other sites; polychlorinated biphenyls (PCB) from waste transformer fluids; pesticides; and lead-based paint in soil.

The Army began the cleanup in the 1980s and the Trust took over the responsibility in 1999 under an innovative interagency agreement. Three programs addressed 1) petroleum contamination; 2) hazardous substances regulated under the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); and 3) lead-based paint in soil around buildings. The California Regional Water Quality Control Board and Department of Toxic Substances Control provided oversight of the remediation process.

RAB community members were able to contribute to the cleanup in several ways. The most fundamental contribution was reviewing and commenting on the complex investigation and planning documents that shaped the remediation projects.

A related role of the RAB was outreach to convey information about the cleanup planning to the larger public and bring community concerns back to the RAB board meetings and the attention of decision makers. RAB members met regularly with neighborhood and civic groups, prepared informational materials and intensified outreach efforts during public comment periods on important documents.

RAB community members conducted independent research in the field and in archives on potential contamination sites that had not been documented or had not been fully documented. The research brought new sites to the attention of the agencies so that they could be included in the remedial investigations. Community members also participated in interagency working groups.

Chapters 4 through 8 of the report give examples of how RAB community members made contributions in the remediation of the Crissy Field area, landfills, the Nike Missile Site, the Mustard Agent Site, lead contamination and Mountain Lake.

The report describes several operating procedures that RAB members believe aided them in being effective as a citizens' board. They include the RAB Charter and Bylaws; membership selection process; use of committees; use of formal RAB resolutions; advocacy of an effective financial reporting system for the remediation programs; and interagency summit meetings.

Adjournment is a Defense Department term for the normally permanent disbanding of a RAB. The report documents the Presidio RAB's rationale for its adjournment in 2014. The main reason was that the cleanup was essentially complete; the state regulatory agencies certified in May and June 2014 that the Army and the Trust had addressed virtually all known contamination in the three programs.

A second reason was that RAB members were confident that procedures established by the Trust and the agencies were adequate for addressing any additional contamination that may be discovered in the future, maintaining existing remedies, and providing for continued public participation.



Aerial photograph of Presidio of San Francisco.
Source: Bing Maps, with annotations added



Map showing boundaries of parklands within the Golden Gate National Recreation Area and central location of Presidio of San Francisco. The GGNRA also adjoins the Golden Gate Biosphere Reserve, the Gulf of the Farallones National Marine Sanctuary, Farallon National Wildlife Refuge, Point Reyes National Seashore and local watershed protection preserves. Source: National Park Service, with annotations added



THE PRESIDIO OF SAN FRANCISCO RESTORATION ADVISORY BOARD



FINAL REPORT

Twenty Years of Public Participation 1994-2014
in the Environmental Cleanup of Our New National Park

Chapter 1. Introduction: The Presidio, Its Environment and the Cleanup

The Presidio of San Francisco is today a national park that is unique because of the combination of its size, its location and the variety and beauty of its terrain. After more than two centuries as a military post, the 1,491-acre installation on the northwestern tip of San Francisco became a park when it was closed as a U.S. Army base and transferred to the National Park Service system in 1994. It is managed jointly by the National Park Service and the Presidio Trust, a federal agency created by Congress in 1996.

The Presidio is the country's largest national park in an urban setting and is visited by several million people each year. Its landscapes include coastal bluffs and shorelines, forests, a lake, miles of walking and biking trails, and natural areas where native plants have been reintroduced by hundreds of volunteers. It also contains more than 700 former Army buildings or replacements of Army structures that are leased by the Trust for residences, offices, museums and recreational facilities.

This Final Report documents the work of the Presidio of San Francisco Restoration Advisory Board and its adjournment after 20 years of public service. It records the history of how citizens serving on the board and the larger public participated in the successful environmental cleanup, also known as remediation, of the former Army base during the concurrent development of the new national park.



Golden Gate Promenade along Crissy Field at Presidio of San Francisco

A Restoration Advisory Board, or RAB, is a citizens' committee that provides advice on and a forum for public discussion of the environmental cleanup at a military base. The Presidio RAB was formed by the Army in 1994 and retained by the Presidio Trust after the Trust took over the remediation responsibility in 1999. In 2014, our RAB voluntarily adjourned, or disbanded, because the cleanup was essentially complete.

The map below shows the Presidio's location in relation to the San Francisco Bay and the San Francisco peninsula. The western shore of the Presidio is bordered by the Pacific Ocean. On the north, the Presidio adjoins the bay and the Golden Gate Strait at the entrance to the bay. Farther north, the Golden Gate Bridge leads to Marin County and a continuation of the Golden Gate National Recreation Area. On the east and south, the Presidio is bounded by residential areas of the City and County of San Francisco.



Location map showing the Presidio on the northern tip of San Francisco at the Golden Gate Strait entrance to San Francisco Bay. Source: National Park Service

Because of its long history as a military base, the Presidio contained dozens of sites that required removal or containment of contamination under present-day regulatory standards to protect human health and ecology. Some of the pollution deposited between the 1920s and 1970s resulted from activities that were considered innocuous at the time, but were later found to have left contamination that could harm adults, children, plants or wildlife. The contamination included petroleum hydrocarbons leaked into the ground and water by fuel distribution pipelines, storage tanks and Army gas stations. Waste and incinerator ash contaminated with lead and other hazardous metals and chemicals were buried in landfills placed over streambeds, wetlands and coastal bluffs. Other contaminants included lead-based paint in soil around buildings, lead and chemicals in former firing ranges, polychlorinated biphenyls (PCB) from waste transformer fluids, solvents and pesticides.

Members of the Presidio RAB adjourned in 2014 with confidence that the cleanup was successfully completed at nearly all known contamination sites. The remediation was begun by the Army and finished between 1999 and 2014 by the Presidio Trust. Two state regulatory agencies, the California Department of Toxic Substances Control and California Regional Water Quality Control Board, provided oversight. In May and June 2014, the two agencies certified that the remediation of known petroleum contamination, hazardous substances and lead-based paint in soil was virtually complete. The cleanup included removal of 576 petroleum tanks and more than eight miles of fuel distribution system pipelines; excavation or containment of hazardous substances at 76 sites, including 16 landfills; and investigation and when necessary excavation of lead-based paint in soil around 814 structures.

The RAB's regular public meeting of April 8, 2014 was chosen as the date for adjournment of the board because the process of developing remediation plans for the known contamination was complete at that point.

The main purpose of this report is to document the history of the Presidio RAB and the accomplishments of citizen participation in the successful cleanup. Part of our aim is to demonstrate how community participation and advice can influence a favorable outcome of environmental cleanup that may not have occurred to the same degree without such intervention.

Another purpose of the report is to describe some of the operating procedures, such as the RAB's Charter and Bylaws, that we developed as a citizens' board and that we believe aided our effectiveness. A chapter discussing these procedures is included in case the ideas may be useful or of interest to other citizens' groups engaged in a public participation process.

The Presidio RAB had two principal accomplishments, in the view of its community members. The first was to provide and maintain effective citizen participation and advice during the 20 years of the board's existence.

The second accomplishment was to contribute to bringing about a thorough cleanup of contamination suitable for a national park. RAB citizen members believe their advocacy and public outreach supported the decision-making agencies in achieving a more extensive remediation than otherwise would have occurred.

In this cleanup, most of the contamination was removed by excavation instead of being contained in place. The result was safe and unpolluted parkland, with greatly reduced requirements for future contamination monitoring and few restrictions on land use by the park's several million annual visitors and the people living and working in former Army buildings. In addition, the clean closure, or excavation and removal, of 12 large former waste landfills, which was strongly advocated by the RAB, allowed the restoration of a dozen areas of natural habitat in the park.

While the Army or the Trust made the ultimate decision on the selection of cleanup remedies, subject to the approval of the oversight agencies, they and the agencies seriously considered community comments and views. Thus, comments by the RAB and other members of the public could influence the final decision.

RAB community members were able to contribute to the cleanup in several ways. The most fundamental contribution was reviewing and commenting on the complex investigation and planning documents that shaped the remediation projects. We estimate that during the 20 years, RAB citizen members reviewed hundreds of documents and commented on dozens of them in formal comment letters, meeting discussions and memoranda.

RAB members sought to convey information about the cleanup planning to the larger public and bring community concerns back to the RAB board meetings and the attention of decision makers. We met regularly with outside groups and intensified outreach efforts during periods of public comment on planning documents. We also conducted independent research in archives and in the field on potential contamination sites that had not been documented, or had not been fully documented, and participated in interagency working groups.

Many dedicated citizens, both on the RAB and in the wider public, worked to support and bring about the cleanup of the Presidio. One theme of this report is that diverse citizens and community groups worked together to advocate protective remedies because they shared a goal of creating safe, clean and restored parkland for future generations of visitors to enjoy. We believe this common goal was one reason why RAB community members with varied backgrounds and skills were able to collaborate effectively for two decades.



The Presidio landscape is a mixture of developed and natural areas

A. How this Report Is Organized

We have tried to write this report in such a way that each chapter can be read separately, so that readers can either read the report sequentially or look at the chapters of greatest interest to them.

The next sections of this introductory chapter explain what a Restoration Advisory Board is and give a brief description of the Presidio. The chapter then gives an overview of the three environmental cleanup programs, which addressed petroleum contamination, hazardous substances and lead-based paint in soil.

Chapter 2 describes the founding of the RAB in 1994 in the context of a regional tradition of public support for preserving open space, creating the new park and protecting the environment. A list of the 82 citizens and 49 agency representatives who served on the RAB during its 20 years of operation is given at the end of the chapter.

The remaining chapters describe RAB community members' participation in the cleanup process according to particular topics rather than chronologically. Chapter 3 outlines the RAB's general contributions to the process, including review of documents, public outreach, independent research and participation in interagency working groups.

Chapters 4 through 8 describe the ways RAB community members made contributions at specific sites and areas, including Crissy Field, landfills, the Nike Missile Site, the Mustard Agent Site, areas of lead contamination and Mountain Lake. Chapter 9 describes six operating procedures that we believe aided our effectiveness as a community group, such as our RAB Charter and Bylaws, membership recruitment process and committee structure.

Finally, Chapter 10 gives the rationale for the adjournment of the RAB on April 8, 2014. The reason for the adjournment was that the three programs for remediating known contamination sites were certified by regulatory agencies as complete, and we feel confident that effective contingency and maintenance programs are in place for addressing any additional contamination that may be found in the future. We give some recommendations for future community outreach and public participation in the event of such discoveries.

B. What Is a Restoration Advisory Board?

A Restoration Advisory Board, or RAB, is a citizens' board intended to provide community advice to decision-makers and serve as a forum for public discussion on environmental cleanup at a military base. The Presidio RAB was one of more than 300 such boards established by the U.S. Department of Defense at active or closed military installations beginning in 1993. (Even when a base has been closed, the military service remains responsible for remediating contamination and thus RABs exist at closed as well as active bases.)

Historically, cleanup at closed bases slated for civilian reuse was discussed only among federal and local government agencies concerned with the oversight of the remediation and reuse of the property. The public did not participate in the process until the late 1980s, when the Defense Department introduced Technical Review Committees (TRCs) at closing bases to review plans for addressing contamination from hazardous substances. The committees were made up of agency representatives and at least one citizen member of the community. Meetings did not have to be public.

In late 1993, the Defense Department began establishing new Restoration Advisory Boards at closing military bases with a broader range of community representation and responsibility. This initiative resulted in part from a presidential directive aimed at achieving fast-track cleanups of former bases being converted to civilian use. Restoration Advisory Boards were intended to improve responsiveness to community needs and the soundness of cleanup decisions by establishing a public forum for discussion and consideration of community views. Current federal law requires

both active and closed military bases to have either a TRC or a RAB “whenever possible or practical.” A RAB is the preferred option, when appropriate, according to Defense Department regulations implementing the law.

A RAB is made up of a combination of citizen volunteers, known as community members, and agency or technical members representing federal, state and local agencies and the military branch responsible for the base. Each RAB has a community co-chair elected by the citizen members and a military or agency co-chair. At the Presidio RAB, the military co-chair from 1994 to 1999 was the Army’s coordinator of environmental remediation for the Presidio. After the Presidio Trust took over responsibility for the cleanup in 1999, the agency co-chair became the Trust’s manager of environmental remediation.

The Presidio Restoration Advisory Board was established by the Army in May 1994 at the urging of a Technical Review Committee founded at the base several years earlier. In 1999, the Presidio Trust, Defense Department and U.S. Interior Department (the parent agency of the National Park Service) agreed in a Memorandum of Agreement that the Trust would preserve and continue the participation of the RAB.

The citizen members of our RAB included both unaffiliated members of the public and people who represented neighborhood, environmental, civic and tribal groups. The agency members included, at various times, representatives of the Army, Army Corps of Engineers, Presidio Trust, National Park Service, City of San Francisco, U.S. Environmental Protection Agency, California Department of Toxic Substances Control and California Regional Water Quality Control Board.

Our RAB met one evening each month in a formal meeting with the agency representatives and project managers. The meetings were open to the public and the transcripts of the meetings became part of the official record of the remediation program. As is described in more detail later in this report, we also held additional committee meetings and workshops, prepared comments on cleanup plans, did independent research and conducted public outreach.

The RAB was not the only conduit of information between the Army or Trust and the public; RABs are intended to complement other public participation efforts by cleanup agencies. However, because we participated in the forum of the regular meetings with agency representatives and were committed to studying the documents and conveying information to other groups, our RAB was able to play a substantial role in public participation in the decision-making process.

It should be noted that the Defense Department’s use of the word “restoration” in the title of a RAB refers only to the cleanup of contamination and not to the reuse of a base or to restoring native plants or wildlife habitat to a natural area. Although a number of members of our RAB were interested in these broader restoration issues and volunteered or participated in other ways outside of the RAB, we took care to limit our work within the RAB to our mandate of reviewing the cleanup.



Aerial photograph with Presidio areas and sites indicated.

Source: Google Maps, with annotations added

C. The Presidio of San Francisco

At the time it was closed as an Army base in 1994, the Presidio of San Francisco was the oldest continuously operating military post in the nation, with 218 years of military history under Spanish, Mexican and U.S. flags. It is now a 1,491-acre national park within the National Park Service's nearly 81,000-acre Golden Gate National Recreation Area. People from the Bay Area and around the world come to the Presidio to see and enjoy its landscapes, trails, beaches, views of the ocean and bay, and cultural, military and natural history. The Presidio is also a National Historic Landmark District with more than 400 buildings designated as historic structures. It is unusual among national parks in that people also live and work in the former Army buildings located in previously developed areas within about one-third of the park's land. The aerial photograph above shows the general layout of the Presidio and its setting next to residential neighborhoods of San Francisco on two of its borders.

The earliest inhabitants of the Presidio were the Ohlone people, who gathered fish and shellfish in the salt marsh and estuary along the bay shoreline and lived in small villages nearby. The first Europeans to come upon the area were members of a small advance party led by Spanish Captain Juan Bautista de Anza, who camped by Mountain Lake at what is now the southern border of the Presidio in 1776. The Presidio was a Spanish garrison from 1776 to 1821 and then fell under Mexican rule from 1822 until 1846, when it was taken over by the U.S. Army.



Battery Boutelle (1900) on the coastal bluffs of the Golden Gate Strait, with the Marin Headlands in the background

Over the next decades, the base became the most important Army post on the Pacific Coast, serving as a coastal defense center and as a base for training and embarkation of troops during the Spanish-American War, World War I and World War II. The post's Letterman Army Hospital was one of the busiest military hospitals in the nation during World War II, treating soldiers who were wounded in the Pacific Theater, including 73,000 in 1945 alone. After the war, the Presidio became the headquarters of the Sixth U.S. Army and of the Nike missile defense system for the regional San Francisco Defense Area.

The Army's legacy on the landscape includes coastal fortifications built to guard against enemy attacks. The historic Civil War-era Fort Point at the northwest tip of the Presidio, near the southern end of where the Golden Gate Bridge was later built, was intended to protect the Golden Gate entrance to the bay. In the late 1800s and first half of the 1900s, the Army embedded concrete artillery batteries in the coastal bluffs along the Pacific to house long-range guns. From 1955 to 1963, the Army operated one of the region's Nike Ajax missile sites on a southern hill in the Presidio. It contained three underground missile storage magazines from which soldiers could raise and launch 34-foot non-nuclear anti-aircraft missiles.

A pioneering military airfield, Crissy Field, was installed near the northern edge of the Presidio along San Francisco Bay in the 1920s together with airplane hangars, fueling and maintenance facilities and administrative buildings. Part of the airfield covered the former marshes of the shoreline, which had been filled in to provide land for the Panama-Pacific International Exposition of 1915. Today, the area has been remade into one of the most spectacular sites in the Presidio, with the shoreline Golden Gate Promenade, a renovated grassy airfield meadow and a restored tidal marsh.



Crissy Field with the "Bird of Paradise," a specially modified Fokker C-2 transport. Photo: National Park Service

Other Army-era structures and features at the Presidio include 19th century brick barracks and cavalry stables, 20th century housing for soldiers, officers, pilots and their families, administrative office buildings, a seven-acre National Cemetery, former firing ranges and former vehicle fueling stations. A small pet cemetery commemorated the pets of Army families in the 1950s and 1960s.

The end of military life at the Presidio was decreed in 1989 when Congress approved a Base Realignment and Closure Commission list of bases designated for closure that included the Presidio. The post was decommissioned on Sept. 30, 1994, and the National Park Service took over the next day. A small Army administrative contingent remained at the post a few more months and left the Presidio for good on June 23, 1995, when the last soldiers lowered and furled their flags and marched out of the Presidio's Lombard Gate to the sounds of a military band.



Sixth U.S. Army Band leading departure of the Army from the Presidio following deactivation ceremony. Photo: National Park Service

The transfer to the National Park Service, as opposed to a possible government sale of the land for private development, resulted from a law written years earlier in 1972 by Congressman Phillip Burton of San Francisco at the behest of a coalition of more than 60 Bay Area community groups. The law created the Golden Gate National Recreation Area and provided that future surplus military land in San Francisco and Marin County would be made part of the recreation area. As shown in the map on page x, the GGNRA now includes nearly 81,000 acres of former military land and other open space in San Francisco County, Marin County and San Mateo County.

To aid in the complex process of renovating and leasing the former Army buildings at the post, Congress in 1996 created the Presidio Trust, a wholly owned government corporation, to manage about 80 percent of the park. The Trust began operation in 1997 and is led by a board of six presidentially appointed directors and a seventh director representing the Interior Department.



Western end of Golden Gate Promenade at warming hut cafe and fishing pier

Congress gave the Trust two goals. The first is protecting “the Presidio’s significant natural, historic, scenic, cultural, and recreational resources” as part of the Golden Gate National Recreation Area. The second goal was to make the Presidio financially self-sufficient through leasing (but never selling) existing buildings or replacements of equal size for residential and commercial use. The Trust achieved the financial mandate in 2013.



Map of Presidio management Areas A and B.

Source: Presidio Trust map with annotations

The Trust was given jurisdiction over the 1,168-acre inland area of the Presidio known as Area B. The National Park Service continues management of 323 coastal acres known as Area A. The above map of Areas A and B shows how the Presidio is divided into the two administrative areas. Both areas remain part of the GGNRA.

Area A, administered by the National Park Service, contains the coastal sections including the restored Crissy Field Marsh and Golden Gate Promenade along the bay, the coastal bluffs and beaches overlooking the Pacific Ocean, and the Lobos Creek Valley in the southwestern part of the Presidio.

Area B, administered by the Presidio Trust, includes historic aircraft hangars on Crissy Field and contains the interior of the former base with more than 700 residential and commercial-industrial buildings as well as natural areas, landscaped areas, and the former Main Post parade ground. More than 400 of the buildings are historic.



Historic buildings on the parade ground at the Presidio Main Post

The area also includes some new development, built under the Presidio Trust Act provision that allowed the Trust to replace existing square footage with new construction of the same square footage. One example is the 850,000-square-foot Letterman Digital Arts Center built in 2005 by filmmaker George Lucas. It replaced the former Letterman Army Hospital. By 2014, about 3,000 people lived in Presidio housing leased from the Trust and the agency managed more than 3.5 million square feet of commercial work space located in more than 250 commercial buildings.

A total of 991 of the Presidio's 1,491 acres in both Areas A and B is open space of various kinds, including native plant areas; landscaped sections; 300 acres of historic cypress, pine, and eucalyptus forests planted by the Army in the 1880s; beaches; coastal dunes; cliffs; several streams and Mountain Lake. The Trust, Park Service and nonprofit Golden Gate National Parks Conservancy together maintain 24 miles of hiking and biking trails through the park.

The open space includes some of the last remnants of San Francisco's original native plant landscape. The park shelters 13 different ecological habits, ranging from dune scrub to serpentine grasslands and oak woodlands, containing 330 native plant species. Five of these species are endangered, including the San Francisco Lessingia and the Presidio Clarkia wildflowers, which are found in only two locations worldwide, and the almost-extinct Raven's Manzanita and wild Franciscan Manzanita, which may exist only at the Presidio. About 230 migratory and resident bird species and 30 butterfly species are seen at the Presidio.

The National Park Service has noted that the valuable native landscape remnants were preserved in part because the Army's presence on the Presidio, perhaps unexpectedly, provided an "environmental lifeboat." This occurred, according to the Park Service, because the Army focused its construction of military housing, office, training, medical and maintenance facilities on certain areas of the post and left other land undeveloped. Because the Presidio was a military base, civilian access was limited, and native plants and wildlife in the undeveloped areas were preserved.

The environmental cleanup of these diverse natural, cultural, residential and commercial landscapes presented many complex challenges to the Presidio remediation program.



Presidio of San Francisco's Inspiration Point and serpentine grassland

D. Environmental Cleanup Challenges at the Presidio

Toxic waste or hazardous waste is discarded material that can pose a long-term risk to public health and the environment. Until the late 1970s, there were few laws regulating the handling or disposal of hazardous waste. Hazardous waste disposal practices that were common on military bases in the past are illegal today. Environmental cleanup, or remediation, concerns the removal or containment of contaminants in soil, groundwater, sediment or surface water for the protection of human health and the environment. The cleanup is regulated by an array of requirements in federal and state laws, and can also be subject to assessments of human health and ecological risks where no legislated standards exist or where standards are advisory.

Hazardous contamination of military bases was not recognized as a serious problem in past decades and was often not addressed in military base closures through the 1970s. By the 1980s, however, it became increasingly clear that almost all military installations require extensive environmental cleanup and that contamination of soil and water is a serious problem that can complicate and delay civilian efforts to reuse former military bases. In 1986, the U.S. Congress began requiring military branches at closing installations to address hazardous substances regulated under the federal Comprehensive Environmental Response, Compensation, and Liability Act, also known as the Superfund law.

The Presidio was initially characterized by the Army in the early 1980s as an administrative post with insignificant contamination. Investigations in the late 1980s and early 1990s revealed, however, that the Presidio was subject to the same contamination issues that are common to other closing military bases. The Presidio was a major center of operations in World War II and the wartime activities at the Presidio made use of extensive fueling, maintenance and training facilities. These facilities and the Presidio's coastal fortifications and Nike Missile Site used hazardous substances and petroleum fuels for years without modern waste management practices.

The Army used dumping grounds to burn waste and discard incinerator ash, trash, and demolition debris within thousands of tons of soil in 16 non-engineered landfills that averaged one to four acres in size. The landfills filled in ravines on stream courses, wetlands and coastal bluffs. While not considered hazardous when the Army disposed of the waste before 1980, the landfills were later found to contain lead and heavy metals and other hazardous chemicals. Wartime training occurred in many areas of the Presidio at numerous indoor and outdoor firing ranges. A remnant network of World War I warfare training trenches can be seen today in Tennessee Hollow Watershed on the eastern side of the Presidio. The possibility of unexploded ordnance, radioactive materials and other chemical warfare agents in the former shooting ranges, training trenches and landfills was a concern.

A network of storage tanks, pipelines and fueling stations crossed the Presidio for the distribution of petroleum products including gasoline, diesel, aviation fuel and heating oil. Before 1980, the petroleum facilities were unregulated and leaks

and spills of petroleum products were common. The Presidio contained more than 500 underground and aboveground storage tanks, some of which had corroded and leaked petroleum hydrocarbons to underlying soil and groundwater. The Crissy Field area was extensively used for the maintenance and fueling of vehicles and aircraft. The associated railroad fuel depot, storage tanks, gas stations and underground fuel lines created significant soil and groundwater contamination within the permeable soils along San Francisco Bay.

The Presidio's buildings, constructed over the course of 200 years, contained asbestos and lead-based paint that required containment or removal. Many buildings formerly used underground storage tanks containing heating oil that had to be removed and any contaminated soil excavated. Lead-based paint used on building exteriors had deteriorated and fallen onto the soil surrounding the buildings. Spills of pesticide and oil leaks from transformers containing polychlorinated biphenyls (PCB) contaminated soil in several areas.

E. Overview of the Environmental Cleanup

At the time the Presidio was designated for closure as a military post in the late 1980s, federal regulations required military bases to undergo environmental cleanup during rehabilitation for civilian use. The Army began cleanup actions at the Presidio that included: 1) inventory and off site removal of hazardous waste containers; 2) inspection and abatement of asbestos-containing materials and lead-based paint in the interiors of residential buildings; and 3) removal of underground storage tanks and associated fueling systems. In the late 1980s, the Army also began the process of investigating the contamination of soil and groundwater regulated under the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).



Removal of underground storage tank.
Photo: Presidio Trust

After the National Park Service assumed management of the Presidio as a new national park in 1994, the Army and U.S. Defense Department retained responsibility for the environmental cleanup through the offices of the Army Environmental Center and Army Corps of Engineers. By 1997, the Army had spent more than \$120 million on environmental cleanup, according to a statement by an Army representative at a RAB meeting that year, and had accomplished substantial progress in the petroleum cleanup and remediation of asbestos and lead-based paint in building interiors. Other tasks remained, however, particularly in the area of contamination by lead, other heavy metals and chemicals in soil, groundwater and surface water.

In addition, five large petroleum contamination sites, part of the basewide Fuel Distribution System of heating-oil pipelines and a number of underground storage tanks also remained to be addressed.

In 1999, the then-recently formed Presidio Trust took over the cleanup through an innovative series of cooperative interagency agreements among the Presidio Trust, Defense Department, Interior Department and regulatory agencies. Under these agreements, the Trust assumed responsibility for addressing most of the remaining known contamination in both Areas A and B of the Presidio. The Army remained and still remains responsible for any unknown contamination discovered in previously unidentified sites, whenever it is found. The Army is also responsible for unexploded ordnance (UXO) and biological, chemical and radiological warfare agents. The agreements resulted in a framework that allowed the cleanup under the management of the Trust to be carried out in less time and to a higher standard than would have otherwise been achieved for the new national park.

As part of the agreements, the Defense Department appropriated \$100 million to the Trust for the cleanup of the Presidio. The Trust purchased two insurance policies for \$7 million to cover possible cost overruns and unexpected additional contamination that might be found in previously identified sites. Because it offered to pay the money early, the Army paid a discounted \$99 million to fulfill the agreement. The insurance policies proved to be a good investment, because the Trust's costs of completing the cleanup totaled \$173 million by 2014. The additional costs were for the most part covered by insurance reimbursements, interest earned on the original appropriation, a lawsuit settlement, and Army reimbursements for remediation of previously unidentified sites. The Trust separately funded the administrative costs of the remediation program. Including the earlier spending by the Army, the total cost of the cleanup appears to be in the neighborhood of \$300 million.

Under the Trust, the environmental remediation program was operated as three independent cleanup programs:

- 1) The Petroleum Cleanup Program;
- 2) The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Cleanup Program for hazardous substances;
- 3) The Lead-Based Paint in Soil Cleanup Program.

The two regulatory agencies supervising these programs were the California Department of Toxic Substances Control (DTSC) and the California Regional Water Quality Control Board (Water Board). In May and June 2014, the two agencies certified that the remediation of known contamination had been completed at 76 CERCLA sites, including 16 landfills; 32 petroleum cleanup sites; 576 underground and aboveground petroleum storage tanks; 45,000 feet of former heating-oil fuel pipelines; and 814 buildings and structures where lead-based paint in soil was addressed.

The following sections describe the three remediation programs in more detail.



Map of petroleum cleanup sites, fuel distribution system pipelines and storage tank sites addressed in the Petroleum Cleanup Program. Source: Adapted from Presidio Trust, Report Supporting Rescission of Water Board Order R2-2003-0080, May 2014, prepared by Erler & Kalinowski, Inc.

1. Petroleum Cleanup Program

The Army's initial environmental cleanup actions focused on removal of petroleum hydrocarbons left in soil and water by facilities including storage tanks, gas stations, vehicle and aircraft maintenance workshops, and fuel distribution system (FDS) pipelines for conveying heating oil to residences and office buildings.

The California Regional Water Quality Control Board provided regulatory oversight for the Petroleum Cleanup Program through a series of three Cleanup and Abatement orders. The first order in 1991 required remediation of groundwater contamination plumes at two former vehicle fueling and maintenance complexes in the Crissy Field area. The second and third orders were a basewide order issued in 1996 and a revised basewide order in 2003. An early important effort of the program was the determination of site-specific cleanup standards for petroleum contamination at the Presidio to protect human health and wildlife. The standards were documented in the Fuel Product Action Level Development Report of 1995.

The Water Board also established a saltwater ecological protection zone for the Crissy Field area and a freshwater ecological protection zone for the Tennessee Hollow Watershed on the east side of the Presidio, where three creek tributaries meet

to form a stream leading to the now-restored Crissy Field Marsh. Requirements for the zones were incorporated in the 1996 and 2003 basewide orders.

On May 14, 2014, the Water Board issued a rescission order terminating the 2003 cleanup order and stating that the remediation of the petroleum sites was essentially complete. It said that 576 underground and aboveground storage tanks were investigated and either removed or found to require no further action. Of these, the Army and Trust removed or addressed 476 petroleum-product tanks under the supervision of the Water Board. Nine other tanks containing waste oils or other substances were removed under the DTSC's supervision and 91 were removed under oversight of the San Francisco Public Health Department in the 1980s.



Excavation of petroleum-contaminated soil at former gas station and vehicle maintenance site at Building 1065 area south of Crissy Field. Photo: Presidio Trust

About 45,000 feet of a heating oil pipeline network known as the Fuel Distribution System (FDS) were excavated and disposed of off-site or clean and sealed. The Army removed most of the pipelines between 1996 and 1999. The Army and Trust also excavated about 100,000 tons of petroleum-contaminated soil and treated additional soil with on-site methods including soil vapor extraction, bioremediation, thermal remediation, natural attenuation and extraction of polluted groundwater.

About 300 of the tanks were associated with the Fuel Distribution System, which was put in operation in the early 1900s to carry heating oil to residences and administrative buildings. It was gradually disconnected between the 1940s and early 1960s. It was stored in large aboveground storage tanks on ridgetops and distributed via gravity through the pipelines. One such tank in the western Presidio, known as Building 1349, held 100,000 gallons and was used to store diesel fuel after its use for heating oil was discontinued. It was removed by the Army in 1995. (In Army usage, Presidio sites are identified by building numbers, even if the structure has been removed or was not a building.)

Other tanks and sites of historic spills of gasoline and diesel fuel were associated with the Presidio's former gasoline stations, fuel depots, and vehicle and aircraft maintenance facilities, many of which were located in the Crissy Field area.

When a spill of petroleum was identified, the Petroleum Cleanup Program required investigation of the soil and underlying groundwater and the development of a plan, known as a Corrective Action Plan, or CAP, to address any contamination found. While the Army and later the Trust had addressed many of these sites in the 1990s and early 2000s, the 2003 Water Board order required a Corrective Action

Plan process at five significant petroleum cleanup sites where contamination had not yet been fully removed and was still polluting groundwater. The locations included the Building 1349 area and four former vehicle fueling or maintenance complexes at or near Crissy Field, including Building 207/231, the Commissary/PX area, Building 1065, and Building 637/638. Another 26 smaller tanks and one other site where groundwater was not affected were addressed through a Mini-CAP process under the 2003 Water Board order. The cleanup of the petroleum sites at Crissy Field is discussed in Chapter 4.



Excavation of petroleum contamination at Bldg. 207/231 former gas stations

2. CERCLA Cleanup Program

In 1989, the Army also started a cleanup program to remove hazardous substances contamination under authority of the 1980 U.S. Comprehensive Environmental Response, Compensation, and Liability Act, commonly known as the Superfund or CERCLA cleanup process. Originally, the CERCLA law did not apply to property owned by the U.S. government such as military bases. This changed in 1986, when Congress amended CERCLA with the Superfund Amendments and Reauthorization Act, which required federal government agencies and the military (as well as private landowners) to follow CERCLA regulations for cleaning up property contaminated with hazardous substances.

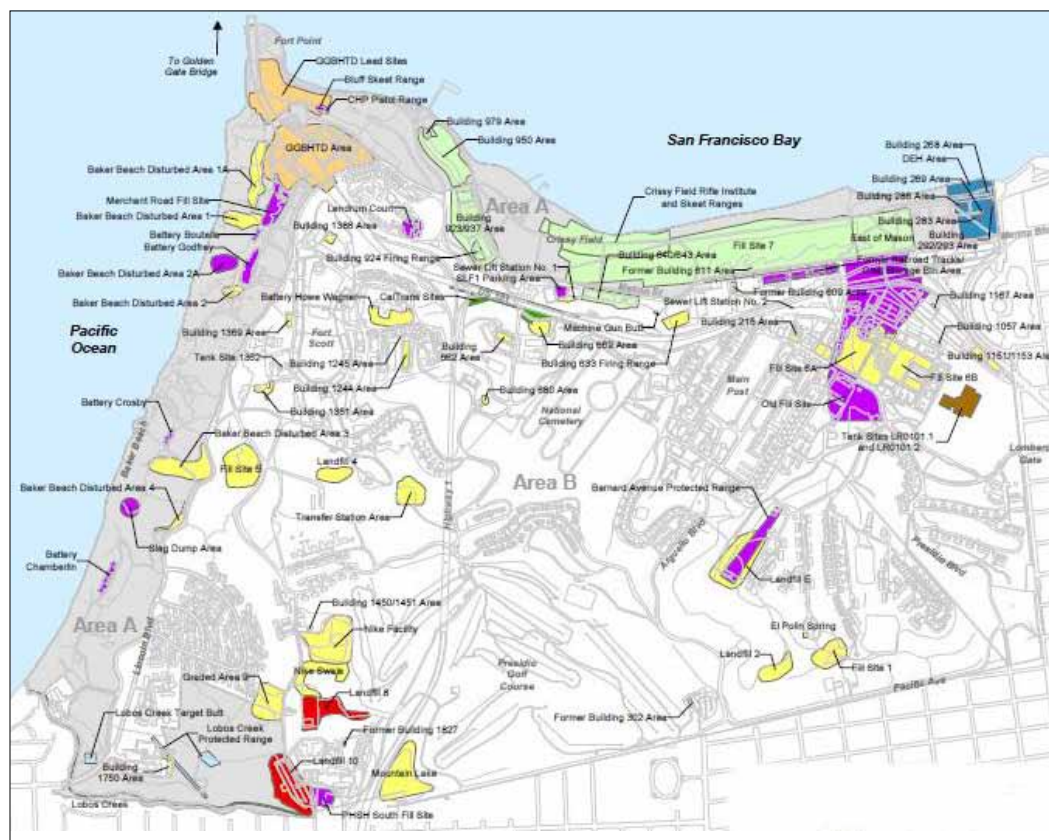
The CERCLA cleanup process identifies and implements the appropriate cleanup actions for hazardous substances that have been released into the ground, water, and air. The substances addressed include harmful chemicals, industrial solvents, lead and heavy metals, polychlorinated biphenyls (PCB) from transformers, and waste oil that may have been spilled or dumped into soil or water. At the Presidio, the 76 sites cleaned up in the CERCLA process included the 16 landfills that were removed or contained on-site; former incinerator sites; several coastal batteries; a waste transfer station; former firing ranges; the former Nike Missile Site and the nearby Nike Swale, among others. The California Department of Toxic Substances Control was designated as the agency to provide regulatory oversight for the Presidio CERCLA program, with the assistance of U.S. Environmental Protection Agency.

The CERCLA law and related EPA regulations set forth a several-step process for investigating contamination and developing a remedy. First, the military branch or the agency responsible for the property conducts an Installation Assessment to

determine potential contamination and a Site Inspection to look for physical clues of pollution. The next steps are a Remedial Investigation to document the nature and extent of contamination and a Feasibility Study to evaluate the alternative remedies for addressing it. The responsible agency or military service then selects a remedy in a document known as a Record of Decision or Remedial Action Plan.

The remedy selection is a critical part of the process. It determines the cleanup levels, the volume of contaminated material to be treated, and the volume of contaminated material to be contained on a site. Consequently, this decision affects the land uses that will be possible following the cleanup, such as residential use, work-site use, or recreational use. If all of the contamination is removed, in a process known as clean closure, the remedy will allow for unrestricted future use of the site. When contamination is left on a site, institutional controls, which can range from fences to documents limiting uses, are employed to ensure that restricted land use is maintained to prevent unacceptable risks to people or wildlife from future exposure. In situations where contamination is contained at a site, the tracking, administration and future management of the residual pollution is an ongoing concern to the public.

The EPA regulations provide for public participation in several ways, all of which were instrumental in bringing about participation by the RAB and the larger public



Map of contaminated sites addressed in the CERCLA Cleanup Program. Source: Presidio Trust, Basewide Report of Compliance submitted to DTSC, May 2014, prepared by AMEC Environmental and Infrastructure, Inc., with annotations added

in the cleanup of the Presidio. First, public comment periods of at least 30 days are required for the Remedial Investigation, Feasibility Study and Remedial Action Plan. The military service or other lead agency is required to respond to all comments received during this period. The regulatory agencies' comments, the community's comments, and the military's responses become part of the official cleanup record.

Secondly, "community acceptance" is one of nine evaluation criteria specified by the EPA's National Contingency Plan for use in selecting a remedy. The other eight criteria are: 1) protection of human health and the environment; 2) compliance with state, federal and local laws; 3) reduction in toxicity, mobility or volume of contaminants through treatment; 4) long-term effectiveness or permanence; 5) short-term effectiveness or time required for implementation; 6) ease of accomplishing the remedy; 7) financial cost; and 8) acceptance to state government.

The factor of community acceptance can have a powerful impact upon the decision-making process, if supported by a strong community presence. At the Presidio, the Presidio Trust, U.S. EPA and California Department of Toxic Substances Control seriously considered public concern for a more protective environmental cleanup under the community acceptance criterion.

A third source of support for public participation was the guidance issued by the EPA on May 25, 1995, in a document entitled "Land Use in the CERCLA Remedy Selection Process." In this guidance, EPA advocated early community involvement with a focus on the community's desired future uses of property, resulting in a more democratic decision-making process and greater community support for remedies.

In 1983, the Army prepared an Initial Installation Assessment of the Presidio pursuant to a Defense Department program. In 1989, under the CERCLA program, it conducted a Preliminary Assessment, Site Inspection and an Enhanced Preliminary Assessment by reviewing historical documents and conducting interviews with past employees. The Army then conducted a Remedial Investigation by sampling soil and water. After issuing drafts of its investigation report in 1992 and 1996, it released its final Remedial Investigation Report in January 1997 and its Feasibility Study Report in May 1997 for a group of about 60 sites known as the Main Installation.



Excavation activities at Fill Site 1 near El Polin Spring in 2010

The Army's proposed remedy would have left much of the contamination in place, with institutional controls and future monitoring, rather than removing it. The plan proposed to spend \$1.5 million on actual cleanup and \$34.5 million on institutional controls and monitoring over 30 years. As we describe in more detail later in this report, the Feasibility Study was met with a strong outpouring of public comment calling for a more stringent cleanup. Fifty-one agencies and individuals submitted written comments, most of which urged that a more thorough cleanup was needed for a national park. The commenters included the Presidio Trust, the EPA, the National Park Service, the RAB and an array of neighborhood and environmental groups, a number of which the RAB had reached out to for discussion of the study.

As mentioned above, the Trust took over most of the remaining cleanup in 1999. In 2003, it issued a revised Feasibility Study that became the basis for the more thorough remediation now completed. The decision-making process and cleanup of CERCLA sites at Crissy Field, Army-era landfills, the Nike Missile Site and Mountain Lake are discussed in Chapters 4, 5, 6 and 8 of this report. On May 20, 2014, the Department of Toxic Substances Control issued an Acknowledgement of Satisfaction, stating that the remediation of known CERCLA sites was completed.



Restored stream corridor following removal of Army-era landfills in upper Tennessee Hollow Watershed, with revegetation under way

3. Lead-Based Paint in Soil Cleanup Program

Soil, yards and playgrounds can become contaminated when exterior lead-based paint from older houses or buildings flakes or peels and falls onto the underlying earth. Lead in soil can be ingested as a result of hand-to-mouth activity that is common for young children, who are especially susceptible to lead poisoning and resulting developmental, neurological and cognitive impairment. Lead particles in soil may also be inhaled if resuspended in the air, or touched by children if tracked into houses. Beginning in the 1970s, health organizations and agencies started recognizing that childhood exposure to lead was a serious health problem in the United States.

In the early 1990s, the Army began addressing crumbling lead-based paint in the interiors of Presidio buildings, but had no plans to investigate dust and flakes of lead-based paint in the soil around the buildings. A RAB community member who



Restored Pilots' Row residences following lead-based paint remediation

was a lead inspector raised concerns at board meetings in the spring of 1995 that lead-based paint in soil posed the same types of dangers to children as interior paint.

In mid-1995, the Army began sampling and remediating lead in soil around residential buildings, using a standard set by the U.S. Department of Housing and Urban Development. The project did not address the soil around non-residential buildings at the Presidio, however.

In 1996, the U.S. Environmental Protection Agency and the state Department of Toxic Substances Control concluded that the lead-based paint in soil surrounding the non-residential buildings qualified as a hazardous substance release that should be remediated under the CERCLA law. The Army disagreed, but in 1998, the EPA and Department of Defense reached an agreement to begin assessment of lead-based paint in soil at non-residential areas as part of a national pilot program.

After taking over the cleanup responsibility for the Presidio in 1999, the Trust investigated and addressed lead-based paint in soil around all types of buildings under the supervision of the DTSC, which approved a Presidio-Wide Lead-Based Paint in Soil Investigation Work Plan for the Trust's ongoing work in 2008. In addition to addressing soil around non-residential buildings, the Trust returned to the residential buildings and cleaned the soil to a stricter standard set by the DTSC.

Completion of the cleanup was certified by No Further Action approval letters issued by the DTSC for individual buildings or groups of buildings. By June of 2014, the Trust had received approval letters certifying that the Army and Trust had investigated and when necessary excavated or otherwise addressed lead-contaminated soil at virtually all the 814 residential and non-residential buildings and other Presidio structures that had been covered with lead-based paint. This program and other lead contamination concerns of RAB community members are discussed in Chapter 7.



Excavation of soil contaminated with lead-based paint. Photo: Presidio Trust

F. Acknowledgments and Sources

RAB community members acknowledge the many contributions to the Presidio's environmental cleanup by the Presidio Trust, National Park Service, U.S. Army, U.S. Army Corps of Engineers, City of San Francisco, U.S. Environmental Protection Agency, California Department of Toxic Substances Control, and California Regional Water Quality Control Board. The accomplishments of the project managers and representatives of these agencies is a lengthy story worthy of its own account and can be found in the agencies' own archives.

RAB citizen members wrote this Final Report independently without consultation with agencies or organizations. We have recounted these events from our recollection, collaborated by information in the following sources:*

- Comment letters, memoranda, resolutions, articles and meeting notes by RAB community members;
- Remediation planning and decision documents and other materials in Army, National Park Service, Presidio Trust and California Department of Toxic Substances Control and Regional Water Quality Control Board archives;
- Restoration Advisory Board meeting transcripts from May 1994 to April 2014, contained in the Administrative Record for the environmental cleanup maintained by the Presidio Trust in its library;
- Technical Review Committee meeting transcripts from September 1993 to May 1994, contained in National Park Service archives.

We have sought to portray the events of the cleanup accurately from the community point of view. We recognize, however, that our account does not necessarily reflect the views or opinions of all groups, agencies or past RAB members. The report was prepared by the RAB Final Report Committee and reviewed and approved by the full membership of RAB community members active in 2014. The committee members were Mark Youngkin and Julie Cheever, who were the lead authors, and Jan Monaghan, Jan Blum, Gloria Gee and Julian Hultgren.

This report is not intended to be a comprehensive account of the environmental cleanup at the Presidio, but rather is aimed at describing the contributions and innovations offered by community members. At the same time, we acknowledge that the ability of community members to contribute to the environmental cleanup would not have been possible without the assistance and guidance of government agencies.

The unique situation of the Presidio of San Francisco allowed both government agencies and community members to work with new approaches to the environmental cleanup process. Part of the story of the Presidio remediation is the interaction among program managers, ordinary citizens, neighborhood leaders, environmental advocates and government regulators. In the following pages, we attempt to describe some of the insights we gained during two decades of public participation.

* Copies of selected RAB comment letters and documents and the transcripts of RAB meetings from 1994-2014 can be found at the Internet Archive digital library (www.archive.org) by using the search term Presidio of San Francisco Restoration Advisory Board.



THE PRESIDIO OF SAN FRANCISCO RESTORATION ADVISORY BOARD



FINAL REPORT

Twenty Years of Public Participation 1994-2014
in the Environmental Cleanup of Our New National Park

Chapter 2. The Founding of the Presidio RAB

The Presidio of San Francisco Restoration Advisory Board was founded in 1994 in an unusual situation. When the RAB's first meeting was convened by the U.S. Army on May 17, 1994, the Presidio was still an Army base. At the same time, however, it was known that in less than five months, the 1,491-acre property would be transferred to the National Park Service and become part of the country's largest national park in an urban setting.

This transformation "from post to park," as it was called, on October 1, 1994, came about in large part because of efforts by citizens to preserve the Presidio and other public land as parkland more than two decades earlier. As was described in the previous chapter, these efforts led to the creation of the Golden Gate National Recreation Area in 1972, with a provision that the Presidio would become part of the park if it were ever deactivated as a military base.

At the time the RAB was founded, it was also expected that the Army would continue to be in charge of environmental cleanup even after leaving the Presidio, as was the normal procedure at other closed and closing military bases. The innovative agreements under which the Presidio Trust took over the remediation lay five years in the future. The Trust itself was not created by Congress to manage the inland areas of the Presidio until 1996.



Present-day Presidio shoreline at Crissy Field with San Francisco skyline beyond

One of the three remediation projects, the Petroleum Cleanup Program, was substantially under way in mid-1994. The program for addressing other hazardous contamination, including harmful substances in landfills, under the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) law was in initial stages. A final determination had not yet been made on the key question of which regulatory standards would govern the levels of cleanup of hazardous substances and petroleum contamination. The third project, the Lead-Based Paint in Soil Cleanup Program, had not yet begun.

Thus, many challenges stood ahead for the environmental remediation program and for the work of the RAB in 1994. One important factor in bringing about a successful cleanup of the new park over the next 20 years was the strong public support for the park. In the San Francisco Bay Area, the foundation for this support was laid by the combination of a national movement to preserve open space and a vigorous local tradition of concern for the environment, public participation and grass-roots activism. By the early 1970s, diverse citizens from throughout the Bay Area shared a common goal of creating public parkland and ensuring that remnant undeveloped land would be protected from future development.

In this chapter, we describe the events leading up to the founding of the Presidio RAB and then discuss the formation of the RAB itself. The chapter begins with brief summaries of the history of public participation in park advocacy in the Bay Area and emerging environmental concerns in the years leading up to 1994.

We are including this historical background because the tradition of park advocacy influenced the course of the Presidio RAB in several ways. Representatives of a number of the groups that supported the creation of the park were among the founding members of the RAB. The RAB also benefited from Bay Area citizens' experience in active participation in environmental causes.

In addition, although not all of the citizens and groups that supported creation of the park were initially aware of the contamination issues at the Presidio, they believed the public was entitled to a safe and clean park. After becoming aware of the need to address the contamination (in part as a result of outreach efforts by the



Restored bluff and California Coastal Trail section on Pacific coast of the Presidio, with Marin Headlands in the background to the north of the Golden Gate Bridge

RAB), many members of the public endorsed efforts by RAB community members and others to achieve the highest regulatory cleanup standards and remedies.

Finally, the common goal of a clean national park was to remain a theme over the 20 years of the RAB's operation. We believe that one reason why the diverse citizens on the RAB were able to work together effectively for so many years was the shared community goal of striving to clean up the new national park for future generations of visitors to enjoy.

Following the historical background, this chapter describes the creation of the Presidio Restoration Advisory Board and its purpose and structure. The chapter ends with a list of the approximately 82 citizens and 49 agency members who served on the RAB between 1994 and 2014.

A. The Creation of a New National Park

The U.S. Department of the Army operated the Presidio as a military installation from 1846 until base closure on September 30, 1994. The post, known as the “Guardian of the Golden Gate,” was an important military garrison strategically located at the northern tip of the San Francisco Peninsula and situated on the Golden Gate Strait, the strait that connects the San Francisco Bay to the Pacific Ocean. It provided coastal defense to San Francisco and the Bay for many years and was an important training and embarkation point for troops in several wars, including the Spanish-American War, World War I and World War II. During the 1950s and 1960s, it was the headquarters for the San Francisco Defense Area of the Nike missile air defense system. By the 1970s and 1980s, it had become primarily an administrative post, serving as the headquarters of the Sixth U.S. Army and the home of the Letterman Army Medical Center.

Owing to the pioneering efforts of local and state preservation groups, the Presidio was declared a California Historical Landmark in 1933. In 1959, members of the new Fort Point Museum Association began preservation of Fort Point, a then



Restored Fort Point (1861), a National Historic Site located beneath the Golden Gate Bridge (1937) at the Golden Gate Strait

dilapidated Civil War-era brick fortification built to guard the Golden Gate Strait at the northwest point of the Presidio. In 1962, the Presidio was given the designation of National Historic Landmark, later elevated to National Historic Landmark District in 1992. Fort Point became a National Historic Site in 1970.

The Bay Area's coastal fortifications had become obsolete by the second half of the 20th century, when missiles and aircraft replaced land-based artillery. In the 1960s, the U.S. government declared many coastal military facilities in the Bay Area to be surplus land, including Fort Point, Fort Miley and Fort Funston on the San Francisco coast; Fort Cronkhite, Fort Barry and Fort Baker on the Marin County coast; and Alcatraz Island in the San Francisco Bay.

Bay Area citizens had long enjoyed recreational activities in the open space areas of military land and as development pressures increased, the prospect of losing the last of the remaining undeveloped land to dense urban cityscape was a cause of concern to many in the public. In 1970, meanwhile, the then-new Bureau of Outdoor Recreation, an agency in the U.S. Interior Department, prepared a report called "Golden Gate: A Matchless Opportunity," which proposed a regional park created from surplus government land and existing public parks at the Golden Gate. The report was not widely publicized at the time, however.

In 1971, a group called People for a Golden Gate National Recreation Area was established by Sierra Club members Edgar Wayburn and Amy Meyer of San Francisco to advocate the creation of a new park system made up of surplus public land in Marin County and San Francisco. The formation of PFGGNRA, as it was known, was initially sparked by opposition to a U.S. General Services Administration plan to build a massive archives center at East Fort Miley overlooking the Pacific coast of San Francisco, but the group soon brought together many other organizations that had worked to preserve open space in the region.

In a 2006 book entitled "New Guardians for the Golden Gate," Amy Meyer recounted how conservationists had won quests to preserve a number of pieces of land as federal, state and local parks in San Francisco and Marin County in the 1950s and 1960s. But by the 1960s, she wrote, "more Bay Area residents were beginning to realize that the scenic beauty, wildlife and recreation dependent on the region's remaining open space were endangered and irreplaceable, and that they could be lost forever." While some development proposals had been defeated, she wrote, "it was becoming clear in 1970 to a number of people (that) other developments would inevitably be advanced. The remaining Army property around the Golden Gate could either be frittered away or be reunited with the parcels that legislators, agencies and the public had succeeded in saving."

The PFGGNRA coalition grew to include more than 60 Bay Area conservation and civic groups urging the establishment of an expanded network of federal parkland in the two counties. In Congress, the groups worked with Representative Phillip Burton of San Francisco, who led the legislative drive for creation of the park. In a remarkable achievement of citizen advocacy and political collaboration, the efforts

culminated in the passage in 1972 of Public Law 92-589, supported and signed by President Richard Nixon, which established the Golden Gate National Recreation Area as part of the national park system.

The law designated 34,000 acres of surplus and potential future surplus military land in Marin and San Francisco counties as present or future parkland under the jurisdiction of the U.S. Interior Department (the parent agency of the National Park Service). At the urging of local conservationists, Burton included the Presidio within the GGNRA's boundaries. The law provided that if the base were ever closed as a military installation, it would become a unit of the park. The legislation also irrevocably transferred 100 acres of Baker Beach on the Pacific Ocean coastline and 45 acres of Crissy Field along the Bay to the GGNRA and placed restrictions on new construction in the remaining garrison of the Presidio.

The purpose of the new park system, the law said, was to “provide for the maintenance of needed recreational open space necessary to urban environment and planning.” In language later echoed in the 1996 law creating the Presidio Trust, the 1972 statute directed the Interior Secretary to “preserve the recreation area, as far as possible, in its natural setting, and protect it from development and uses which would destroy the scenic beauty and natural character of the area.”



Portion of GGNRA map entitled Post to Park Conversions showing former military installations converted to parkland. Source: National Park Service

The figure on the previous page from a National Park Service map entitled “Post to Park Conversions” shows the extent of former military installations added to the Golden Gate National Recreation Area as a result of the 1972 legislation. More lands in Marin, San Francisco and San Mateo counties were added over the next several decades and by 2014 the GGNRA contained nearly 81,000 acres of federal parkland, as shown in the map on page x of this report.

In 2006, looking back on the creation of the GGNRA in “New Guardians for the Golden Gate,” Amy Meyer wrote, “The story of the Golden Gate National Recreation Area affirms the power of dreams, the effectiveness of political action, and the positive role of government.”



Two elements of the GGNRA: Baker Beach on the Pacific Ocean shore of the Presidio and the Marin Headlands across the Golden Gate Strait

B. Environment and the Presidio from the 1970s to the Early 1990s

Following the creation of the GGNRA in 1972, the Presidio remained an Army base, with additional construction and development, for approximately two more decades, until it was designated for base closure in 1989 and then deactivated and transferred to the National Park Service in 1994. During this time, public and governmental awareness of potential contamination hazards at military bases began to grow. In the 1980s, the Army began to investigate and address some of the contamination at the Presidio, against a backdrop of increased federal, state and local requirements for cleanup. By the early 1990s, however, civic leaders began to be apprehensive about whether the cleanup would be completed in a timely and adequate way for the reuse as a national park.

1. The Presidio's Neighbor, San Francisco

The city of San Francisco had long depended on the Presidio Army Base for protection from invasion, rescue during earthquake and fire, and employment for many local civilians. The post was not immune from development pressure and in the 1970s and 1980s, the Army planned several construction projects in remaining open areas of the Presidio, some of which were carried out and some of which were blocked. As a neighbor of the military base for more than 200 years, the city of San Francisco closely watched the new proposals for development on the Presidio.

In 1970, the Army proposed to build two new elementary schools in natural areas at the Lobos Creek Valley and El Polin Spring districts in the Presidio. The plan encountered concerted local opposition. After initially approving the plan, the San Francisco Board of Education voted against it, and the Army eventually abandoned the proposal. The two sites have now been preserved as ecological areas that contain some of the rare and endangered plant species found at the Presidio.

In 1973, the Park Service, the Army and the city parks department worked together at the urging of then-Mayor Joseph Alioto to celebrate the creation of the new GGNRA by inaugurating the Golden Gate Promenade, a 3.5-mile public walkway along the northern shoreline of the city and the Presidio's Crissy Field. The 130-acre Crissy Field, most recently used for warehouses and parking lots, was the site of the former pioneering military airfield built along the San Francisco Bay shore of the Presidio in the 1920s. The walkway was the precursor of the popular present-day promenade, known for its spectacular views of the bay, the Marin headlands and the Golden Gate Bridge. It was widened and resurfaced during the restoration of the Crissy Field shoreline and marsh in the late 1990s.



Present-day view of Golden Gate Promenade at Crissy Field on San Francisco Bay

At the time, however, the Army did not envision leaving the Presidio. In the early 1970s, it built a new Mason Street roadway separating the Interior Department's shoreline section of Crissy Field from the remainder of the Crissy Field area left in Army jurisdiction. The Army also constructed a 50,000-square-foot Post Exchange facility just south of the roadway and in 1989, it added a 93,000-square-foot Commissary across a parking lot from the exchange, over the site of a former Army motor pool and fuel depot.

When the Army first announced a proposal to relocate the Sixth U.S. Army from the Presidio to Treasure Island in 1978, San Francisco created a "Save the Presidio" committee to provide financial incentives and seek to persuade the Sixth U.S. Army to stay at the Presidio. For the next ten years, San Francisco civic leaders, politicians and congressional representatives advocated strenuously to keep the Presidio operating as a military post. At the same time, the city of San Francisco was concerned with the growing scope of Army development plans for the Presidio. The city negotiated an informal memorandum of understanding with the Army that sought to preserve the remaining open space in the Presidio.

In early 1986, a Sierra Club lawsuit prevented the construction of a large regional U.S. Postal Service sorting facility on Crissy Field. This building was planned as part of a \$100 million development program for the Presidio begun by the Army in 1985. The lawsuit alleged the Army was violating a 1978 amendment to the GGNRA legislation that allowed new construction only to replace demolished buildings and required public notice of any such action. A federal judge agreed and halted construction of the postal facility. The Army was, however, allowed to build the new Commissary in 1987-1989 after demolishing four smaller buildings. But the structure was moved inland away from the shoreline and built at a lower height than originally planned by the Army.



Removal of abandoned underground storage tank.
Photo: Presidio Trust

In the late 1980s, the San Francisco Public Health Department, which is responsible for enforcing hazardous waste and underground storage tank regulations within the city, supervised the removal of the first 91 underground storage tanks to be removed from the Presidio. After the Restoration Advisory Board was formed in 1994, representatives of the Public Health Department and city Redevelopment Agency served as agency members on the board for several years.

2. Initial Investigations and Actions in the 1970s-1980s

Dramatic newspaper accounts of toxic waste sites such as the Love Canal neighborhood in the city of Niagara Falls, New York, and the “Valley of the Drums” in Kentucky in the 1970s inspired national public support for strengthening environmental regulations. They also brought public attention to contamination at military installations in communities around the country. In 1978, President Jimmy Carter ordered federal facilities, including military bases, to begin complying with the then-existing pollution control laws. The Army initially believed there were few pollution problems at the Presidio, however.

During the first outside environmental inspections of the base in 1981 and 1982, inspectors from the California Health Services Department’s new Toxic Substances Control Program observed rusting transformers leaking oil potentially tainted with polychlorinated biphenyls (PCB) along with improperly stored drums of waste chemicals. The inspectors cited the Army for violations of California regulations and ordered immediate improvements in chemical housekeeping practices. The Army eventually responded by starting a toxic waste management program with the aim of preventing future pollution of soil and groundwater.

In 1983, the Army released the first environmental evaluation report of the Presidio Army Base, entitled Initial Installation Assessment, which recommended further testing and cleanup of petroleum spills, but optimistically concluded that no action was needed for potential hazardous substance contamination at the base. Wary of the Army's assessment, members of the San Francisco Board of Supervisors asked the local Arms Control Research Center, later known as Arc Ecology, in 1987 to review available public documents for the base.

In 1986, the Army engaged an engineering consulting firm to conduct a study of potential groundwater contamination at Crissy Field. In a disquieting report, the consultant concluded that groundwater at Building 937, a former aircraft and vehicle maintenance facility at the west end of Crissy Field, was contaminated with both petroleum and industrial solvents from a leaking waste-oil tank and that the groundwater plume could migrate towards nearby San Francisco Bay.

In the 1980s, the Army began identifying and removing abandoned underground storage tanks on the Presidio formerly used to store heating oil for Presidio buildings and other petroleum fuels and chemicals. As the work progressed, it became obvious that these abandoned tanks posed a significant threat of leakage and groundwater contamination. As mentioned, the San Francisco Public Health Department inspected and reviewed the removal operations of 91 tanks in the late 1980s. Later, in the 1990s, the California Regional Water Quality Control Board assumed the oversight for the removal of more than eight miles of petroleum pipelines and 476 other petroleum storage tanks.

3. Increased Concerns amid Base Closure

Cleanup efforts at the Presidio and, at the same time, community concern about possible hazards both gathered momentum after it was announced in 1988 that the post would be closed as a military base. As described in Chapter 1, the Base Realignment and Closure Commission included the Presidio on a list of recommended military base closures in 1988, and Congress ratified the recommendations the following year. In accordance with the law creating the GGNRA, the post was transferred to the National Park Service on Oct. 1, 1994.

Although the Defense Department was ordered in 1978 to begin complying with federal pollution control laws, the 1980 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) law on cleanup of hazardous substances



Abandoned fuel storage tanks at Building 637 gas station area in 1993. Source: Ramos Environmental Engineering, Tank Closure Report, Tank #637 Aboveground Tanks, prepared for U.S. Army, 1993

did not apply to military bases until 1986, when the statute was amended to include federal facilities. The amendment also provided that closing military bases converted to civilian use must be either cleaned up by the time of transfer or subject to assurances that the military would complete the remediation after the transfer.

Even as the Army began to conduct new investigations and proposals for contamination sites under the CERCLA Cleanup Program in the late 1980s and early 1990s, public awareness of potential hazards increased and community concern grew. Members of the public began to fear that the Presidio might be left in a contaminated state that would impede its reuse as a national park.

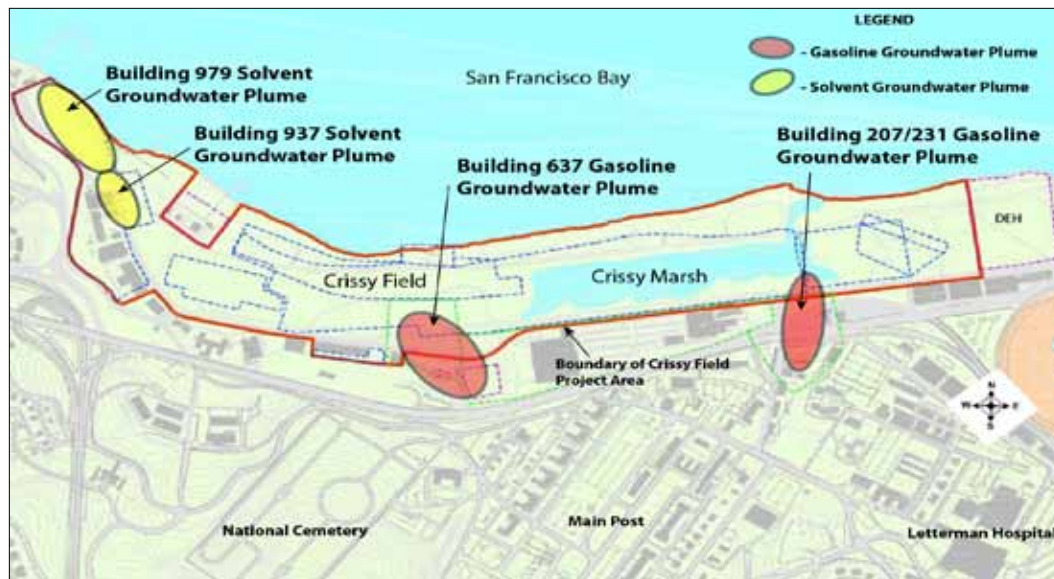
In 1988, Arc Ecology and its director, Saul Bloom, started a Presidio Cleanup Campaign that began publicly discussing the potential toxic legacy of the Army base. The following year, Arc Ecology released a report that identified what it described as five “hot spots” where hazardous chemicals from petroleum storage tanks, transformers and waste drums had leaked into the ground. Four of the spots were in the Crissy Field area, including the previously mentioned Building 937, where the plume of groundwater contamination appeared to be advancing toward the Bay.

In 1989-1990 and again in 1991, the Army issued two rounds of studies and reports on potential cleanup sites in the CERCLA program. The Sierra Club and Arc Ecology criticized the documents as lacking adequate research and not being comprehensive enough for a new national park. In 1990, the U.S. EPA performed its own Installation Assessment of the Presidio using independent research, including a study of historical aerial photographs, that identified new areas of environmental concern.

Meanwhile, in 1991, California created new state agencies to improve enforcement of environmental regulations. The chief agency created was the California Environmental Protection Agency, known as CalEPA. One of its divisions was the new Department of Toxic Substances Control, or DTSC, which was charged with enforcing environmental laws and regulations. It took over the responsibilities formerly handled by the state Toxic Substances Control Program. The DTSC would become the lead regulatory agency in supervising the environmental cleanup at the Presidio under the CERCLA law.

Also in 1991, the California Regional Water Quality Control Board issued the first of three cleanup and abatement orders it would impose for the Presidio between that year and 2003. This first order required the Army to investigate and clean up the groundwater contamination in Crissy Field at the Building 937 site and the Building 207/231 former fueling stations to the east to protect the San Francisco Bay. The Water Board also began supervising the Army’s existing program to remove petroleum-product storage tanks and the pipelines formerly used for heating oil. The map on the next page shows the groundwater plumes at the Buildings 937 and 207/231 areas, as well as two other plumes that were identified at Crissy Field at the Buildings 979 and 637 areas by 1997. (In Army usage, sites are identified by building numbers, even if the original structure has been demolished.)

A Community Relations Plan prepared by the Army Corps of Engineers in 1992 contained a survey that revealed serious concern among Presidio neighbors and



Locations of groundwater plumes at Buildings 937 and 207/231 project areas at Crissy Field, the sites of the first Regional Water Quality Control Board order in 1991. Additional plumes at Buildings 979 and 637 were discovered later. Source: U.S. Army, Draft Remedial Action Plan, Crissy Field Area, Oct. 3, 1997, Adapted from Figure 4.2, Sites of Remedial Activity, Crissy Field Area

community leaders about the potential level of contamination at the Presidio, the level of remediation planned, how long the cleanup would take and who would pay for it. The survey summary reported that “residents are extremely concerned that the Army will relinquish its responsibility for cleanup of any toxic or hazardous waste left behind.”

As the Army began assessing the sites regulated under the CERCLA program, it detached the area of the former Public Health Service Hospital into a separate unit that would be addressed in advance of other sites. This area on the southern border of the Presidio, adjoining the city of San Francisco, contained two large waste and debris landfills, Landfills 8 and 10, to the north and west of the hospital. The health service had been leasing the land from the Army since the 1800s and surface water contamination had been an historic issue at nearby Mountain Lake and Lobos Creek. Lobos Creek is the main drinking water source for the Presidio.

In 1993, the Army completed a Remedial Investigation and a Feasibility Study for the hospital area, proposing that the landfills be left in place with ongoing groundwater monitoring for Landfill 8 and soil and groundwater sampling for Landfill 10. Arc Ecology expressed concern that the investigation was incomplete and the remedies inadequate. (Later, after taking over the cleanup, the Presidio Trust reopened consideration of the site in 2004 and selected more protective remedies of engineered soil covers for the two landfills, discussed in Chapter 5 of this report.)

Community organizing related to the Presidio intensified in the early 1990s and new groups began to interact with the Army’s environmental remediation program. These included the Golden Gate National Parks Association (later renamed Golden

Gate National Parks Conservancy), a nonprofit partner of the GGNRA formed in 1981, and the Presidio Council, an organization of local business leaders, which expressed dismay about the slow pace of environmental cleanup. In 1993, Amy Meyer founded People for the Presidio to provide information on Presidio issues, including environmental matters, to local groups.

By 1993, many civic, community and business leaders had come to believe that the military had minimized the extent and degree of potential contamination at the Presidio and downplayed the scope and future costs of the environmental cleanup. They feared the Army would leave the cleanup unfinished and the National Park Service would not be able to provide the funds to complete the task while also upgrading the infrastructure needed to make the Presidio a viable self-sustaining entity. The city of San Francisco joined with civic groups in advocating a thorough remediation to support the future reuse of the base and leasing of buildings.



Main historic 1932 building of the former Public Health Service Hospital after cleanup and rehabilitation to Presidio Landmark apartments in 2009-2010

C. Creating the RAB: A Sense of Urgency

In the late 1980s, the Department of Defense began establishing groups known as Technical Review Committees, or TRCs, at some closing bases. A 1986 law called for these committees “whenever possible or practical” at closing bases with environmental cleanups. They were required to have at least one public member in addition to representatives of the military, the U.S. EPA, state regulatory agencies and local governments. The purpose of a TRC was to review and comment on proposed remediation plans. Meetings did not have to be public.

At the Presidio, the Army began sponsoring closed-door Technical Review Committee meetings in 1989. The committee included representatives of the National Park Service, U.S. EPA, California DTSC and Water Board, San Francisco Public Health Department and City Attorney’s Office, and three civic groups: the Presidio Council, Arc Ecology and the Sierra Club.

In 1993, the concept of a Restoration Advisory Board was initiated in a Five-Point Plan for Revitalizing Base Closure Communities announced by President Bill Clinton on July 2 of that year. The plan was aimed at speeding the economic recovery of areas affected by base closures. One of the five components was a fast-track environmental cleanup, and as part of that component, the plan required

expanded public participation in the process. The fast-track program also called for formation of a new BRAC Cleanup Team, known as a BCT, for joint decision-making purposes. (BRAC was an acronym for Base Realignment and Closure.) The BCT was to be composed of representatives of the Department of Defense, U.S. EPA and state regulatory agencies.

To carry out the directive, the Department of Defense issued guidance in September 1993 for creation of new Restoration Advisory Boards that could replace TRCs and would expand public representation. The guidance was based partly on recommendations for citizen advisory groups developed by an EPA-sponsored Federal Facilities Environmental Restoration Dialogue Committee. A year later, the DoD and EPA jointly issued more detailed RAB implementation guidelines in September 1994. Also in the fall of 1994, Congress amended the federal law that had required TRCs to mandate either a TRC or a RAB, when possible or practical, at bases undergoing environmental remediation.

The public members of the Presidio Technical Review Committee welcomed the new Restoration Advisory Board structure and lobbied hard during the fall of 1993 and early 1994 for creation of such a forum. They noted that the Navy had created RABs in late 1993 at the nearby Hunters Point Naval Shipyard in southeastern San Francisco and the Alameda Naval Air Station and urged the Army to move ahead quickly to establish a Presidio RAB.

In March 1994, the U.S. EPA inspected a waste drum storage facility, known as the pole barn, at Building 950 on the western end of Crissy Field and reported serious violations of regulations on hazardous waste storage. This investigation was one of a series of surprise inspections of the Presidio conducted by the EPA in preparation for the base's conversion to a national park. In an unprecedented action, the agency issued a proposed fine of \$556,500 for the violations.

In another important action, the EPA and DTSC case officers ordered all hazardous waste that was stored in containers hauled off the Presidio by the transfer date to the National Park Service. The agencies also directed the Army to investigate and clean up the contaminated soil and groundwater that they suspected existed beneath the Building 950 site, where the National Park Service was planning to demolish the dilapidated structures. The revelations of hazardous waste and groundwater contamination, together with concern about the Army's impending departure from the Presidio, increased a sense of urgency among local neighbors and civic groups for tackling the cleanup issue.



West end of Crissy Field showing former motor vehicle sheds including Building 950 (pole barn), looking west toward Golden Gate Bridge. Photo: Library of Congress

In the spring of 1994, the Army agreed to sponsor a Restoration Advisory Board at the Presidio. After publishing announcements that new community members were being sought, the Army held a public meeting on April 12, 1994 to explain the purpose of the board. Colonel Gregory Renn, the garrison commander, told participants, “The goal of this program is to increase the public’s awareness and enhance its partnership with the Army....The Army is rightfully proud of its stewardship with the Presidio, creating and maintaining it as the most beautiful military installation in the world. We are also proud of our long-standing role as a good neighbor to the surrounding Bay area communities. The establishment of the Presidio RAB is but a continuation of those traditions.”

In answer to a question from the audience, Army representatives said that they expected the environmental cleanup to be completely finished within two years and that the RAB would then be terminated.

Sixty-eight people applied to serve on the RAB. A selection committee of representatives of the Army, the National Park Service, U.S. EPA, California DTSC and one member of the public reviewed the applications and recommended 20 new citizen members to join the three members of the public who had served on the TRC. Colonel Renn, who had the final decision, approved the selections. The first meeting of what was to be 20 years of operation of the board was then held at the base’s Golden Gate Club on May 17, 1994.

D. The Presidio Restoration Advisory Board

The purpose of the Presidio Restoration Advisory Board was to provide community advice on the environmental cleanup and a forum for public discussion of remediation plans and activities. In the 1994 implementation guidelines, the Defense Department and EPA described the goals of the then-new RABs:

The boards are a forum for exchange of information and partnership among citizens, the installation, EPA and state. Most importantly, they offer an opportunity for communities to provide input to the cleanup process. It is our view that RABs will improve the DoD’s cleanup program by increasing community understanding and support for cleanup efforts, improving the soundness of government decisions and ensuring cleanups are responsive to community needs.

Later guidelines and reports by the Defense Department showed the increasing importance of RABs and their potential role. In 1995, the department reported to Congress that the number of RABs at military bases nationwide had grown to 251. In 1998, it said the number had grown to 341. The department told Congress, “Once viewed as a new initiative, the RAB program has matured and is now recognized as standard operating procedure.”

An updated RAB implementation handbook published by the Defense Department in 2007 included a more specific reference to the role a RAB could play in influencing cleanup decisions. It said, “While the general public can comment on

DoD's environmental restoration program, RABs offer a focused and interactive opportunity to participate in the environmental restoration process."

As the Presidio RAB evolved, it came to emphasize a collaborative, consensus-oriented approach to cleanup decisions. As is recounted later in this report, an important step occurred when the Army and the Trust used interagency working groups that included RAB representation to aid in planning the fast-track cleanup of the Crissy Field area on the north shore of the Presidio between 1997 and 1999. After taking over the remediation in 1999, the Trust continued to use a collaborative approach in planning the cleanup of a number of sites.

Throughout the development of the boards, the federal guidance made clear that a RAB was not intended to be the sole conduit of information between cleanup agencies and the public. The 1994 guidelines stated, "The RAB complements other community involvement efforts, but does not replace them." The Presidio RAB agreed with that principle and specifically incorporated that statement into its Charter and Bylaws.

The Presidio RAB brought together the various threads of the definition of its role, including the concept of consensus decisions and an interactive partnership, in the mission statement of its Charter and Bylaws of 2000. The mission section stated:

The Restoration Advisory Board is the principal forum where the people who reflect the diverse interests within the local community can meet with representatives of the Presidio Trust, the U.S. Army, NPS, EPA, RWQCB, DTSC and other agencies to discuss and exchange information about the environmental restoration program at the Presidio of San Francisco. The purpose of the Restoration Advisory Board is to create an open and interactive partnership through which communities, agencies and public stakeholders work to produce consensus decisions that restore the environment while incorporating the interests of the Trust as the Lead Agency as well as the needs and acceptance of the local community. The Restoration Advisory Board facilitates the early and continued flow to the community of information necessary for responsible decision-making. The Restoration Advisory Board is intended to complement other community involvement efforts and not replace them.

(As discussed in Chapter 9, the RAB developed its Charter and Bylaws in several stages between 1994 and 2003. The version approved by the RAB in 2000 was essentially the final document, although it was amended in minor respects in 2003.)

Although RABs are encouraged to establish their own individual operating procedures, the Department of Defense and EPA guidelines set forth the basic structure of a RAB. The members of a RAB are a combination of citizen volunteers, known as community members, and agency members representing the military, regulatory agencies and other interested government entities. They are required to meet at regular intervals at publicly announced meetings open to the public.

A RAB has two co-chairs, an agency co-chair representing the military (or, in the case of the Presidio, the Trust after 1999) and a community co-chair elected by the citizen members. The agency co-chairs of the Presidio RAB were Army BRAC environmental coordinator David Wilkins from 1994 to 1999 and Presidio Trust

remediation program managers Sharron Reackhof from 1999 to 2000, Craig Cooper from 2001 to 2007, and Eileen Fanelli from 2008 to 2014. The community co-chairs were Robert Reinhard from 1994 to 1995, Jan Baxter in 1996, and Mark Youngkin from 1997 to 2014.

A total of approximately 82 citizens and 49 agency members served on the RAB during the 20 years of operation, as best we can determine. They are listed at the end of this chapter, together with dates and years of service.

The agency members initially included representatives of the Army Environmental Center, Army Corps of Engineers, National Park Service, U.S. Environmental Protection Agency, California Department of Toxic Substances Control, California Regional Water Quality Control Board, San Francisco Department of Public Health and San Francisco Redevelopment Agency. As the remediation progressed under the oversight of the DTSC and Water Board, San Francisco agencies became inactive on the RAB after 1997 and the U.S. EPA became inactive after 2004.

After the Presidio Trust was formed in 1996, a Trust representative joined the board. When the Trust took over the environmental cleanup in 1999, it replaced the Army as the lead agency and the Army ceased participating in the RAB. The RAB itself continued to exist because of the Memorandum of Agreement on the transfer of cleanup authority signed by the Trust, Defense Department and Interior Department that year. The agencies agreed that the Trust would “preserve and continue the participation of the present Restoration Advisory Board in the environmental remediation process at the Presidio.”

The number of citizen members on the board averaged 20 to 25 for most of the years of the RAB’s existence. The number reached a peak of about 30 members in 1996 and decreased to about 15 in the last couple of years of the RAB as the remediation program was winding up.

About one-fourth of the community members represented particular neighborhood, environmental, civic or tribal groups, while others were unaffiliated citizens who brought a variety of skills and viewpoints to the RAB. We believe that all RAB members made a valuable contribution, whether they represented an organization or served as individuals, and whether they participated for one year or many years.



Photo of RAB members in 2001. Photo: Presidio Trust

The community organizations represented on the RAB at various times included Arc Ecology, Black Postal Employees Association, Cow Hollow Association, Filipino-American Women's Action League, Fisherman's Wharf Association, Golden Gate Audubon Society, Golden Gate National Parks Conservancy, International Facilities Management Association, International Urban Estuary Network, Marina Civic Improvement & Property Owners Association, Muwekma Ohlone Tribe, National Lead Abatement Council, People for a Golden Gate National Recreation Area, Planning Association for the Richmond, Presidio Council, Presidio Heights Association of Neighbors, and Sierra Club.

The founding RAB members in 1994 included representatives of the three organizations that had participated in the Technical Review Committee as well as of other neighborhood and environmental groups that had been active in park advocacy. Several other founding members were individuals with scientific expertise. The experience and knowledge of these representatives and individuals aided the new RAB in getting a running start on understanding the complex remediation processes.

When new community members were needed as a result of turnover, the RAB's Membership Committee reviewed and culled the hundreds of applications for citizen positions to ensure the board strategically met the program needs. New members, who were approved by a vote of the full community sector of the board, added extra capability through expertise in areas such as geology, toxicology, risk assessment, financial analysis, business management and journalism, among others.

While new members brought additional perspectives, the RAB maintained continuity through members who served for a number of years. More than half of the 82 citizen members participated for at least five years, and 12 were board members for more than ten years. Those who served for between ten and 20 years were Sam Berman, Jan Blum, John Budroe, Edward Callanan, Julie Cheever, Gloria Gee, Julian Hultgren, Doug Kern, Jan Monaghan, Peter O'Hara, Sara Segal and Mark Youngkin.

Several long-term agency members also brought institutional memory to the board. They included National Park Service representative Brian Ullensvang, a RAB member for 18 years, and DTSC representative Robert Boggs, a member for 12 years.



Photograph of RAB members in 2005

E. A National Park as a Common Goal

As the National Park Service began planning the reuse of the Presidio as a park in the late 1980s and early 1990s, the possibility of contamination posed concerns because there were many ways that people and wildlife could be exposed to risks from the contamination. It was expected that families would be living and office tenants would be working in the more than 700 buildings found in about one-third of the park area. In the natural and open-space areas in the other two-thirds of the park, adults and children could be exposed to contamination during recreational activities such as hiking, jogging, picnicking, playing soccer and baseball on playing fields placed over landfills, or, in the case of young children, playing in soil.

The Presidio would also be a park in the making, where park workers and volunteer stewards would be planting native plants on Presidio hillsides and the dunes at Crissy Field, scientists and students would be conducting archaeology digs, and park ecologists would be re-creating a living salt-water marsh on the shore of Crissy Field. These activities could potentially expose people to contamination in the soils and waters of the Presidio.

In 1990, the National Park Service and GGNRA Advisory Commission

adopted a set of Presidio Planning Guidelines in preparation for the post-to-park conversion. Among other points, these guidelines specified that “hazardous waste will be removed; and air and water quality, and other environmental values of the post will be restored and enhanced.”

When the cleanup program began, the Army appeared to have an overall goal of completing the environmental remediation at the Presidio rapidly and economically, consistent with its nationwide remediation policy and using cleanup standards and remedies equivalent to those used at other closing military bases. In contrast, the objective for the Park Service, many members of the public, and the Trust was to have the Army carry out a thorough environmental cleanup at the Presidio using more protective standards and remedies suitable for a national park.

RAB community members believe that because the Presidio is a national park, civic-minded citizens and groups came to the RAB with a common goal of helping to clean up the installation to the highest standards possible, with long-term and lasting remedies. With a shared goal, each citizen member or organization was able contribute particular talents to some aspect of the cleanup, whether it was technical review



Volunteers planting at El Polin Springs habitat area in 2011. Photo: Presidio Trust



A group of volunteer Presidio park stewards and college students in the summer of 2014 at the North Arm of Mountain Lake, where volunteers planted native plants following the excavation of lead contamination and the restoration of wetlands. Photo: Presidio Trust

of documents, participation at meetings, analysis of data, public outreach, financial analysis, business management or law. Government agencies, neighborhood groups, environmental organizations and motivated citizens were able to work together to ensure that the Presidio would be a safe and sustainable national park.

Michael Alexander of the Sierra Club's Presidio Task Force, a TRC member who became a founding member of the RAB, summarized local sentiment when he was quoted as saying, "We have to make this special place into a great urban park – a crown jewel like Yosemite, Yellowstone or the Grand Canyon." This common goal and a sense of accountability to a worldwide audience and future generations was a factor in enabling the community to sustain commitment to participation in the environmental cleanup for 20 years.



Recent view of restored upper Tennessee Hollow Watershed following the removal of two Army-era landfills and revegetation

F. List of RAB Community and Agency Members 1994-2014

The following is a list of community and agency members who served on the Restoration Advisory Board from 1994 through 2014 with approximate dates and years of service:

Community Members

Name	Affiliation	Time of Service	Years
Doug Kern	Community Member Facilitator 1995-2012	1994-2014	20
Jan Monaghan	International Facilities Management Assoc.	1994-2014	20
Peter O'Hara	Cow Hollow Association	1994-2011	17
Saul Bloom	Arms Control Research Center/Arc Ecology	1994-2003	9
Scott Miller	Arms Control Research Center/Arc Ecology	1994-2001	6
LeeAnn Lahren	Sierra Club Presidio Task Force	1994-2000	6
Andrew Lolli	Fisherman's Wharf Association	1994-2000	6
Bruce McKleroy	Presidio Heights Association of Neighbors	1994-2000	6
Joan Girardot	Marina Civic Improvement Association	1994-1999	6
Michael Alexander	Sierra Club Presidio Task Force	1994-1998	4
Harold Ball	Community Member	1994-1997	3
Sue Chubuka	People for Golden Gate Nat. Recreation Area	1994-1997	3
Ernest Lee	Community Member	1994-1997	3
Jill Stoner	Community Member	1994-1997	3
Janette Baxter	Community Member	1994-1996	2
	Community Co-Chair 1996		
Carol Daly	Community Member	1994-1996	2
Dexter Chan	International Urban Estuary Network	1994-1996	2
Heidi Gewertz	People for Golden Gate Nat. Recreation Area	1994-1996	2
Michael Healy	Golden Gate Audubon Society	1994-1996	2
Bennett Horenstein	Community Member	1994-1996	2
Ellis Wallenberg	Community Member	1994-1996	2
Robert Reinhard	Presidio Council, GGNPA	1994-1996	2
	Community Co-Chair 1994-1995		
Sol Levine	National Lead Abatement Council	1994-1995	1
J. Dennis Bonney	Community Member	1994-1995	1
Deni Leonard	Community Member	1994-1995	1
Helen Marte-Bautista	Filipino-American Women's Action League	1994-1995	1
Burnet Sumner	Community Member	1994-1995	1
Lary Stuhlmiller	Community Member	1994-1995	1
Caroline Washington	Black Postal Employees Association	1994-1995	1
Julia (Julie) Cheever	Planning Association for the Richmond	1995-2014	19
Mark Youngkin	Community Member	1995-2014	19
	Community Co-Chair 1997-2014		
Arlene Gemmill	International Urban Estuary Network	1995-2001	4
Howard Nathel	Community Member	1995-1999	4
Jane Bernard-Powers	Community Member	1995-1998	3
Molly Hooper	People for Golden Gate Nat. Recreation Area	1995-1998	3
Arthur Young	Community Member	1995-1997	2
Roberta Jehorek	Community Member	1995-1997	2
Larry Shockey	Community Member	1995-1997	2

Andre Tolpegin	Community Member	1995-1997	2
Jon Dougal	Community Member	1996-1998	2
Julian Hultgren	Community Member	1997-2014	17
Mathew Fottler	Community Member	1997-2002	5
JoAnn Chow Winship	Community Member	1997-2000	3
Wesley Skow	Community Member	1997-1999	2
Louis Rosenbaum	Community Member	1997-1998	1
Sam Berman	Community Member	1998-2014	16
Edward Callanan	Community Member	1998-2014	16
Tracy Wright	Community Member	1998-2006	8
Ellie Roman	Community Member	1998-2000	2
Ravi Subramanian	Community Member	1998-2000	2
Rosemary Cambra	Muwekma Ohlone Tribe	1998-1999	1
Michael Schultz	Community Member	1998-1999	1
Andrew Young	Community Member	1998	1
Kathryn Hyde	Community Member	2000	1
Gloria Yaros	Community Member	2001-2007	6
David Sutter	Community Member	2001-2006	5
Gerry Anderson	Community Member	2001-2005	4
Joel Herman	Community Member	2001-2004	3
Dennis Downing	Community Member	2001-2003	2
Casey Berman	Community Member	2001	1
Willard Harris	Community Member	2001	1
Cheryl Swanson	Community Member	2001	1
Kate Poole	Community Member	2001-2002	1
Jan Blum	Community Member	2002-2014	12
Mary Trigiani	Community Member	2002-2004	2
John Budroe	Community Member	2003-2014	11
Gloria Gee	Community Member	2003-2014	11
Sara Segal	Community Member	2003-2014	11
George Dies	Community Member	2003-2006	3
Jack Luikart	Community Member	2003-2005	2
Suzanne Novotny	Community Member	2003	1
John Rosenberg	Community Member	2003	1
Michelle Passero	Community Member	2004-2008	4
Karen Cleek	Community Member	2005-2007	2
John Chester	Community Member	2007-2014	7
Toni Kramer	Community Member	2007-2014	7
Barbara Newton	Community Member	2007-2014	7
David Bach	Community Member	2007	1
Jay Wilner	Community Member	2007	1
Kevin Whilden	Community Member	2008-2011	3
Jim Ketcham	Community Member	2009-2014	5
Gerald Dodson	Community Member	2009-2012	3

Agency Members

Name	Affiliation	Time of Service	Years
Michael Work	U.S. Environmental Protection Agency	1994-2004	10
David Wilkins	Presidio BRAC Environmental Coordinator	1994-1999	5
	U.S. Army Co-Chair	1994-1999	

Roger Henderson	U.S. Army Corps of Engineers	1994-1998	4
Roberta Blank	National Park Service	1994-1998	4
John Buck	U.S. Army Environmental Center	1994-1998	4
Romy Fuentes	Department of Toxic Substances Control	1994-1998	4
Amy Brownell	San Francisco Department of Public Health	1994-1997	3
Col. Frank Janeczek	U.S. 6th Army Base Public Works Director	1994	1
Greg Bridgestock	U.S. Army Corps of Engineers	1994	1
William Lee	San Francisco Department of Public Health	1994	1
Scott Nakamura	San Francisco Department of Public Health	1994	1
Arnold Rossi	U.S. 6th Army Base Transition Coordinator	1994	1
Paul Townsend	U.S. Army Corps of Engineers	1994	1
Richard Hiett	Regional Water Quality Control Board	1994-1995	1
Lyn Suer	Regional Water Quality Control Board	1994-1995	1
Brian Ullensvang	National Park Service	1996-2014	18
Gina Kathuria	San Francisco Redevelopment Agency	1997	1
Bruce Handel	U.S. Army Corps of Engineers	1997-1998	1
Joseph Chow	Regional Water Quality Control Board	1997-1998	1
Martha Walters	San Francisco Redevelopment Agency	1997-1998	1
John Chester	San Francisco Redevelopment Agency	1997-1998	1
James Meadows	Presidio Trust Executive Director	1998	1
Craig Middleton	Presidio Trust Intergov. Relations Director (Executive Director 2001-2015)	1998	1
Chris Nelson	Presidio Trust, Project Manager	1999-2004	5
Jennifer Coats	Presidio Trust, Project Manager	1999	1
Daniel Murphy	Department of Toxic Substances Control	1999	1
Clare Best	Department of Toxic Substances Control	1999-2000	1
Henry Chui	Department of Toxic Substances Control	1999-2000	1
Linda Dorn	Regional Water Quality Control Board	1999-2000	1
Sharron Reackhof	Presidio Trust, Program Manager Agency Co-Chair 1999-2000	1999-2000	1
Claudia Villacorta	Regional Water Quality Control Board	1999-2000	1
George Ford	Presidio Trust, Project Manager	2000-2008	8
Craig Cooper	Presidio Trust, Program Manager Agency Co-Chair 2001-2007	2001-2007	6
Robert Boggs	Department of Toxic Substances Control	2002-2014	12
Tony Di Stefano	National Park Service	2002-2004	2
James Ponton	Regional Water Quality Control Board	2002-2004	2
Patricia Ryan	Department of Toxic Substances Control	2002-2003	1
Rachelle Maricq	Department of Toxic Substances Control	2004	1
Ryan Seelbach	Presidio Trust, Project Manager	2006-2014	8
Devender Narala	Regional Water Quality Control Board	2006-2007	1
Genevieve Coyle	Presidio Trust, Project Manager	2007-2014	7
Linda Janssen	Department of Toxic Substances Control	2007	1
Eileen Fanelli	Presidio Trust, Program Manager Agency Co-Chair 2008-2014	2008-2014	6
Agnes Farres	Regional Water Quality Control Board	2008-2014	6
Remedios Sunga	Department of Toxic Substances Control	2009-2012	3
Radhika Majhail	Department of Toxic Substances Control	2011-2014	3
Denise Tsuji	Department of Toxic Substances Control	2011-2014	3
Virginia Lasky	Department of Toxic Substances Control	2011	1
Lori Koch	Department of Toxic Substances Control	2012-2014	2



THE PRESIDIO OF SAN FRANCISCO RESTORATION ADVISORY BOARD



FINAL REPORT

Twenty Years of Public Participation 1994-2014
in the Environmental Cleanup of Our New National Park

Chapter 3. The Role of the RAB

At the time the Presidio of San Francisco Restoration Advisory Board was founded in 1994, an Army representative told members of the public attending an informational meeting that the Army estimated the environmental cleanup would take about two years to complete, as was recounted in the previous chapter. It turned out that the process took two decades.

During this time, RAB community members attended the formal board meetings together with agency representatives on the second Tuesday evening of every month and usually held one or more committee meetings each month as well. In the early years of the RAB, and again during a key review of cleanup issues in 1997, community members voluntarily attended as many as three three-hour meetings per month to allow time for study and discussion of the complex technical issues. RAB members also met regularly with outside groups and conducted research related to the remediation.

In this chapter, we describe some of the contributions RAB community members were able to make to the environmental remediation program at the Presidio. This chapter gives an overview of four types of contributions. The following chapters will describe in more detail the RAB's work at several specific sites and areas, such as Crissy Field, the landfills, the Nike Missile Site, the Mustard Agent Site, lead-contaminated areas and Mountain Lake.



Civil War Parade Ground on Main Post of Presidio of San Francisco

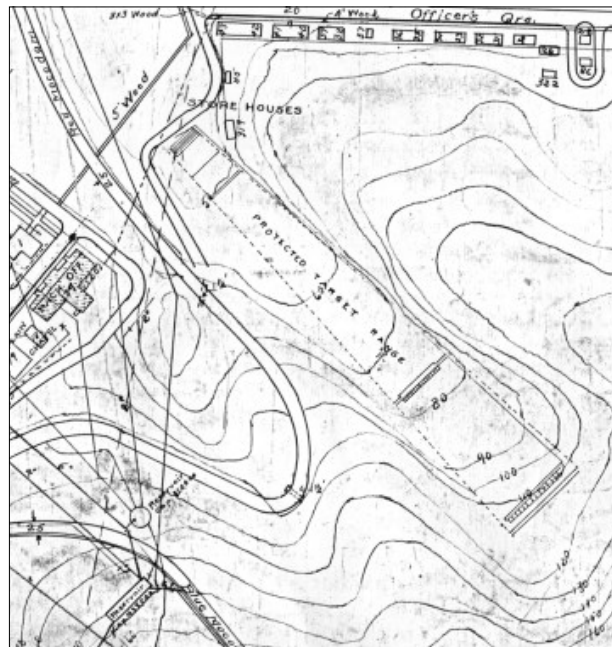
RAB community members were able to contribute to the cleanup process in four general ways, in our view. These were:

- a) Reviewing and commenting on cleanup planning documents;
- b) Outreach to the wider public;
- c) Independent research;
- d) Participation in interagency working groups.

- The review, analysis and comment on cleanup investigation and planning documents was the foundation of RAB community members' ability to contribute to the remediation process. The study of the materials was sometimes a daunting challenge, because the various documents were voluminous, technical and often organized in a way that made it difficult for readers from the general public to grasp the information. We believe the investment in document review time enabled community members to provide well-founded and timely advice on environmental cleanup issues important to the public.

- A second basic responsibility of the RAB was to reach out to the wider public to convey information about cleanup plans and to bring community concerns back to the board meetings and the attention of decision makers. In this role, we met regularly with outside organizations, made presentations, and created informational materials.

- In 1996, RAB members began to make two additional types of contributions that we believe were quite innovative. One of these was independent research on sites and historical records. After becoming concerned that the Army's investigative reports appeared to have information gaps, community members began exploring overgrown thickets and wooded areas and discovered military landfills that had not been fully documented, forgotten springs and wetlands, previously unnoticed petroleum stains in soil, and half-buried debris that suggested the extent of landfills was greater than had been mapped. A RAB member examined documents at the Army Records Center at the Presidio and contributed a list of potentially contaminated sites that had not yet been studied. The community member also alerted the Army and regulatory agencies that the Army's investigation



Portion of historic 1909 map showing outline of forgotten Barnard Avenue Protected Firing Range, later buried under Landfill E. Source: Golden Gate National Recreation Area archives at Park Archives and Records Center

of possible contamination at Crissy Field had not accounted for a former motor pool facility, containing fueling stations, pipelines and storage tanks, that had been located beneath and near the Commissary built in 1989.

- The other innovative contribution by the RAB was the substantive participation by community members in interagency working group meetings. This process began when individual community members joined government agency representatives in four working groups formed to develop expedited cleanup plans for Crissy Field between 1996 and 1999. Later, RAB community members proposed and participated in interagency summit meetings between 2006 and 2009.

These four areas of contributions are discussed in the following sections.

A. Document Review and Comment

Reviewing cleanup documents was a primary duty of the RAB and a thorough review was critical to its role. We estimate that over two decades, RAB community members studied hundreds of cleanup documents and commented on dozens of them at meetings and in formal letters.

Many of these documents were related to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Cleanup Program discussed in the previous two chapters of this report. The 1980 CERCLA law concerns the remediation of hazardous substances and provides for several rounds of documents subject to public comment: a Remedial Investigation; a Feasibility Study that would propose a cleanup plan; and a Remedial Action Plan for carrying out the selected remedial option. The chief regulatory agency for CERCLA sites at the Presidio was the California Department of Toxic Substances Control.

At the time the RAB was founded, the Army was in the midst of a CERCLA process for a large group of more than 60 sites, including about a dozen landfills, known as the Main Installation. By 1994, the Army had already completed two Remedial Investigation drafts and in the early years of the RAB it prepared two more as well as two versions of a Feasibility Study. The Crissy Field area, which contained several complex contamination sites, was originally part of the Main Installation but was detached into a separate unit with its own set of documents in 1997.

After the Trust took over the cleanup in 1999, it prepared a new Main Installation Feasibility Study, completed in 2003. Over the next 10 years, these Main Installation sites were addressed in nine separate Remedial Action Plans, some of which were subdivided into smaller plans. The Trust and regulatory agencies also developed cleanup standards for these sites, described in a document entitled Development of Presidio-Wide Cleanup Levels for Soil, Sediment, Groundwater, and Surface Water, published in 2002 and revised in 2006. All of these documents were subject to public comment.

Another type of document to be reviewed was the Corrective Action Plans and cleanup standards developed for petroleum cleanup sites under the oversight of the Regional Water Quality Control Board. Although the Army's removal of petroleum

storage tanks was substantially under way by the time the RAB was founded, many petroleum sites remained to be addressed. These included contaminated soil and groundwater at several large former vehicle maintenance and gasoline pumping facilities; more than eight miles of former heating-oil pipelines; contaminated soil in the vicinity of some tanks that had been removed; and some tanks that had not yet been addressed. Cleanup levels for petroleum-contaminated soil were developed during the early years of the RAB by the Army Corps of Engineers in a document entitled Fuel Product Action Level Development Report (FPALDR), which was discussed at RAB meetings in 1995 and approved by the Water Board in 1996.

In addition to study of the documents by individual members, the RAB used committees in several different ways to aid in the review of plans and documents. In the first two years, the RAB had committees corresponding to each of the three cleanup programs. Community member Harold Ball led a committee that studied petroleum cleanup plans and standards, Jan Baxter headed a committee on the Main Installation CERCLA sites, and Sol Levine and LeeAnn Lahren led a committee on asbestos and lead-based paint concerns. The committees reported to the full RAB at board meetings.

By 1997, the RAB developed the use of a committee of the whole, known as the Planning Committee, which met on the fourth Tuesday of each month. This committee continued until 2011 and its meetings were attended by representatives of the National Park Service, the Trust and, for most of those years, the DTSC and Water Board in addition to community members. This committee gave community members a valuable opportunity to discuss remediation program issues and information with the agency representatives in an informal setting.

Between 1999 and 2003, RAB community members established a third type of committee to study the approximately 40 remaining Main Installation CERCLA sites, including landfills, and the Trust's revised plans for the sites. These committees were four internal working groups made up of community members. Each committee studied the sites within one quadrant of the Presidio. The groups reported on their research to the full RAB and drafted comments for inclusion in RAB comment letters on the Revised Feasibility Study, which was completed in 2003.

The review of large and complex technical documents was very demanding of all RAB members and required a special commitment of volunteer time. In the early years of the RAB, Army documents such as the draft Remedial Investigation and draft Feasibility Study for the Main Installation contained volumes of dense technical discussion, unique terminology and cryptic acronyms. Numerous cleanup sites were combined into one chapter in the 1995 Remedial Investigation draft and separating the various sites for review was unwieldy. Separate volumes contained text, figures, tables, appendices of data tables, statistical analysis, and risk assessments, and it was time-consuming to switch back and forth among the large binders to review a particular site. It also took time to locate previous reports to determine what historical research and how much sampling and testing had been used in the earlier investigations and assessments.

In these reports, the raw investigation sampling data was usually filtered by professional consultants in statistical procedures difficult for citizens to understand. Close examination of the documents was required to understand the data and then debate the techniques that appeared to minimize the amount of required cleanup. Particularly in the case of the original Army risk assessments for abandoned landfills, the review process was time-consuming, requiring the combined effort of both agency and community members for many months. At landfills, the Army collected sporadic samples and then appeared to filter the data to such a degree that the resulting risk assessment, based on an analysis method known as the Monte Carlo technique, relied on a handful of remaining soil samples.

During the first three years of the RAB, disagreements between the Army and stakeholders (which included regulatory agencies, the National Park Service, community members and eventually the Presidio Trust) centered on several issues. Among these were the adequacy of the investigations; the determination of cleanup levels to be used for contamination in soil and water; the selection of regulatory standards, known as Applicable or Relevant and Appropriate Requirements, or ARARs; and the uncertainty in risk assessments. In the Army documents, stakeholders often saw the analysis techniques and resulting conclusions for the first time when the document was released for public comment. With the clock for comment ticking, stakeholders debated the cleanup issues at RAB meetings at the same time they were seeking to review the document. Differences between the Army and stakeholders led to long technical discourses. In the early years, some community members left the RAB after only a few months because of the complex material and technical debates.

We are grateful for the time invested by agency project managers who educated community members on the intricacies of cleanup policy, environmental regulations, investigation techniques, data analysis and risk assessment. The knowledge learned was passed on to new community members during the two decades of the RAB's operation. Over the course of the years, community members developed their own expertise in document review and data analysis. In time, other stakeholders and regulatory agencies came to look to the community review of documents as a valuable second opinion on the adequacy of decision documents and work plans.

Our experience suggests that several phases of draft document review by RAB members were required to provide substantive input on a major decision document and that all stakeholders should be included early in the document preparation process. Community members also advocated longer public comment periods of at least 60 days, rather than the standard 30 days, to allow adequate time for review of complex documents. Longer comment periods were also sought by a number of neighborhood, environmental and civic groups that needed time to complete the process of internal circulation and approval of their proposed comments.

RAB members commented on the documents in several ways. Community member statements at the formal board meetings were a form of public comment, especially because transcriptions of the meetings were made part of the public record.

RAB community members also occasionally submitted advisory letters and memoranda reporting on their research to the Army or Trust and regulatory agencies, as described later in this chapter.

The main form of comment by RAB community members was comment letters submitted to the Army or Trust and regulatory agencies during the official public comment periods for the various documents. Community members submitted both individual and group comments. The group letters were usually drafted by a committee and circulated several times among the full membership for suggestions, revisions and consensus before they were completed. Community members with scientific backgrounds sometimes submitted additional letters with more technical discussion. RAB members who represented a particular organization would often work with the organization in developing comments.

For example, when the Army released its Main Installation Feasibility Study for comment in 1997, twenty of the RAB's 23 community members signed onto a 10-page comment letter that opposed the plan to leave much of the contamination in place. The letter was circulated several times among RAB community members to reach consensus on the wording. It included eight general comments on issues such as the need for a full and safe cleanup and the risks and costs of leaving contamination in place, as well as 11 comments on specific sites and groups of sites. Six RAB community members also submitted individual letters and six contributed to letters written by civic organizations represented on the board.

As described elsewhere in this report, the RAB comments were among about 50 letters from individuals, agencies and organizations, some of which the RAB had reached out to, that urged a more thorough cleanup. The comments from all of these entities supported the Presidio Trust in its action in taking over the remediation in 1999 and developing more protective cleanup plans, and supported the regulatory agencies in approving the revised remedies.

RAB community members continued to submit group and individual comment letters throughout the operation of the board until the 2014 adjournment. We believe community members' extensive review and comment on planning documents, together with our public outreach and other contributions described below, helped to bring about a more thorough cleanup of the Presidio than would otherwise have occurred.



Clean closure (excavation) of Landfill 2 in Tennessee Hollow Watershed in 2010

B. Outreach to the Surrounding Community

Another responsibility of RAB community members, according to a 2007 Department of Defense RAB handbook, is to “act as a conduit for the exchange of information” and “represent and communicate RAB issues to the community.”

Over the two decades, we presented information about cleanup projects and issues of concern to the larger community in a variety of ways. We met regularly with outside groups to convey information about the cleanup and to bring community concerns back to the attention of the agencies on the RAB. We prepared informational materials, including newsletter articles and fact sheets. We concentrated especially on communicating information to the public at junctures where the Army, or later the Trust, and the California Department of Toxic Substances Control were seeking public comment on cleanup plans.

The RAB’s outreach played a particularly important role during the crucial period, described above, between 1997, when the Army’s Main Installation Feasibility Study proposed to leave much of the contamination at landfills and other sites, and 1999, when the Trust took over the remediation and began preparing a plan to remove more of the contamination. During the 1997 comment period for the Army’s Feasibility Study, we intensified efforts to meet with community groups to discuss the plan and urge public comment on it. In the following two years, while that plan was still pending, we developed the use of one-page fact sheets to help explain the contamination at individual sites and our concerns.

One factor that affected our outreach efforts throughout the two decades was the great public interest in the Presidio and its transformation from an Army base to a national park, as described in Chapter 2 of this report. At the same time, however, members of the public were less aware or sometimes not at all aware of the environmental contamination at the Presidio. A second factor was the San Francisco Bay Area’s strong traditions of civic participation and concern for the environment, so that people who did become aware of Presidio pollution problems were likely to be interested in taking part in public comment. Thus, we believe we worked hard at outreach, but had the opportunity to do so in an area where there was a favorable atmosphere for our efforts.

In 2014, Ron Miguel, a civic leader, reflected on the role of the RAB. He was a former president of the Planning Association for the Richmond, a neighborhood group in the northwestern Richmond District of San Francisco, and of Neighborhood Associations for Presidio Planning, an umbrella organization of neighborhood groups concerned with the Presidio.

“The RAB was not the only group getting the word out, but it was by far the most effective group,” he said. “Because it was made of neighbors and wasn’t a government entity, the neighborhood groups were more willing to listen. There was a constant stream of information (from the RAB) whenever anything new came up. The public was able to follow what was happening and have trust that the Presidio would come into its own.”

Below, we describe three types of outreach efforts.

1. Outreach to Community Groups

During the first decade of the RAB, a number of community members on the board directly represented particular neighborhood, environmental, civic and tribal groups. The RAB representatives would report back regularly to their organizations on the remediation planning and activities, and would also bring any concerns of the groups to the attention of RAB agency and community members at board meetings. These organizations included, at various times, Arc Ecology, Black Postal Employees Association, Cow Hollow Association, Filipino-American Women's Action League, Fisherman's Wharf Association, Golden Gate National Parks Conservancy, International Urban Estuary Network, National Lead Abatement Council, North Beach Neighbors, Marina Civic Improvement & Property Owners Association, Muwekma Ohlone Tribe, People for a Golden Gate National Recreation Area, Planning Association for the Richmond, Presidio Heights Association of Neighbors, and Sierra Club.

RAB members also met with other interested neighborhood groups not represented on the RAB to make presentations or learn about their concerns. Among these groups were Neighborhood Associations for Presidio Planning, People for the Presidio and Friends of Mountain Lake Park.

2. Army and Trust Newsletters

At the time the RAB was founded in 1994, the Army published a quarterly remediation newsletter entitled Presidio of San Francisco Environmental Newsletter. We developed the idea of having a regular column by the RAB community members in these newsletters and gained approval of the Army's public affairs staff for the project. The columns began in the spring of 1996 and eventually were entitled "RAB Report." After the Trust took over the remediation in 1999, it maintained the newsletter under the title of Presidio CleanUp News, and we continued the RAB reports until the Trust ceased publishing the newsletter in 2003.

The reports usually contained one or two articles about RAB activities, projects we were studying, or our independent research. Individual RAB community members took turns writing the articles, and we circulated them internally for review before submitting them to the newsletters. We generally tried to avoid making editorial statements and to concentrate on being informative and factual. The aim was to provide scientific or historical background about the cleanup sites that might be of interest to the public, and also to illustrate citizen participation.

The articles described our studies of the Nike Missile Site, El Polin Springs, petroleum contamination at the Presidio, the landfills on the coastal bluffs along Baker Beach, Mountain Lake, the Building 637 petroleum site and lead concerns, among other topics. We also compiled an annual review of the RAB's efforts.

The illustration on the next page shows some examples of the newsletter articles.



Examples of articles by RAB community members in Army and Presidio Trust newsletters 1996-2003. Photo: George Altschuler

3. Fact Sheets

As described above, the Army's 1997 Main Installation Feasibility Study was a complex document, encompassing several dozen sites, including a number of landfills. While the Army's plan was still under discussion between 1997 and 1999, we developed the use of one-page fact sheets as a means of providing information to the public about the most important sites in a more accessible way. Each fact sheet covered one landfill or other site. The purpose was to explain, in a brief and understandable format, the pollution concerns for each site and why we believed that more of the contamination should be removed instead of being left in place with soil caps or land use limitations. We used the fact sheets both internally and in meetings with policy makers, organizations and individuals.

Each fact sheet consisted of sections describing the site; the contaminants of concern (chemicals found in amounts above background levels or regulatory standards); the potential hazards posed; the Army's recommendation; a community reaction to that recommendation; and a community-proposed cleanup alternative that would remove more of the contamination. The sites covered included Landfill 2, Landfill 4, Landfill E, the Nike Missile Site, El Polin Spring, Battery Howe-Wagner, and the Commissary (former motor pool). An example of a community member fact sheet is shown below.

Contamination FACT SHEET
The Presidio of San Francisco

Produced by Community Members of the Presidio of San Francisco Restoration Advisory Board
Contact: Doug Kern

Site
Landfill 4

Description
Landfill 4 was used for Presidio on-site waste disposal from approximately 1946 until as recently as 1981. Located in the middle of a eucalyptus grove in the western uplands of the Presidio, Landfill 4 is to the west of Wright Loop between Central Magazine Road and Hitchcock Street. It is less than 100 yards east of the Presidio's Boy Scout Camp on Central Magazine Road. According to Presidio personnel working at the time of disposal activities, materials dumped in Landfill 4 included chemical wastes from many Presidio facilities. Up to 14 feet of undocumented wastes and fill material were dumped into a 5-acre depression. A cap of up to three feet of soil, brick, glassware, gravel, concrete and pipes was added when the landfill became inactive in 1981.

In the middle of the landfill is a cluster of at least eleven large dead eucalyptus trees. It is not known why these trees died; Army representatives have suggested the cause may be bulldozer damage. Sampling in four out of five Landfill 4 test pits detected 13 different pesticides as well as two occurrences of polychlorinated biphenyls (PCBs). Auto battery caps, plastics and a "zone of green corrosive material as 10 inch thick pockets or lenses" were also identified in test pits at Landfill 4.

Contaminants of Concern (found in amounts above background or regulatory standards)
Soils: aluminum, antimony, barium, beryllium, copper, chromium, iron, lead, manganese, mercury, nickel, and zinc. Chlordane and dieldrin are 2 of the 13 pesticides detected. PCBs, volatile organic compounds (VOCs), diesel range petroleum hydrocarbons, semi-volatile organic compounds (SVOCs), unknown hydrocarbons, cresol, polynuclear aromatic hydrocarbons (PAHs), 4-methylphenol. Pesticides have been detected in the native material below the landfill.
Groundwater: Copper, cyanide, mercury, chromium, barium.

Hazards
Landfill 4 is an ongoing potential hazard to human health and the environment. A large variety of heavy metals and chemicals exists at the site. The ecological risk assessment in the Army's Remedial Investigation suggests that the site may be hazardous to common birds and small mammals. The Army's proposal to limit contact with polluted soil through land use restrictions would mean that the site could not be used as open space, despite its close proximity to the Boy Scout Camp.

Army Recommendation
No cleanup or disposal of contaminated soils. No cleanup of groundwater. "Institutional controls" (land use restrictions) to prevent contact with contaminated soil or landfill contents. Monitor groundwater.

Community Reaction *
Army recommendation inadequate because cleanup insufficient and future open space use jeopardized. The contaminated soils and hazardous wastes should not be contained at the site for future generations of Presidio visitors. The Army's suggested remedies of no action and monitoring do not adequately address the possible range of open-space future uses at the site.

Community Cleanup Alternative *
Soil: Remove more and possibly all of the landfill material and affected soils. Landfill 4 is a candidate for complete removal of all soils, under criteria set forth in the U.S. Environmental Protection Agency's "CERCLA Municipal Landfill Presumptive Remedy to Military Landfills." More complete excavation is also called for by the Presidio Landfill Closure Principles adopted by the Presidio Restoration Advisory Board in May 1997, which state that landfills should be excavated, fill materials recycled where appropriate, and material from the fill sites consolidated at modern, appropriately-designed and monitored off-site disposal facilities.
Groundwater: Monitoring over a period of five years is recommended. If the contaminated soil is removed the possibility of future contamination of groundwater will likely be sharply curtailed and the monitoring cost in the Army's recommendation will be reduced.
* Community suggested cleanup alternative concept currently endorsed by:

C. Independent Investigation

Even after a decade of updated assessment reports, many stakeholders suspected in the mid-1990s that Army investigations were not comprehensive enough for the Presidio's unique requirements as a national park. Community members realized that historical documentation appeared missing in key early reports that formed the basis of subsequent investigations. For example, the U.S. EPA had analyzed time-series aerial photographs in 1990 and discovered new potential contamination sites that the Army did not completely include in later reports.

A key goal of a site investigation is to develop a competent site conceptual model, which is a working description of site conditions incorporating historic data, geology, hydrology, sampling data, and many other factors. Community members believed that the more field data and samples that are collected during the investigation of a contaminated site, the greater the likelihood that an accurate site conceptual model and protective remedy will be achieved. When information or samples are missing from the site conceptual model, a data gap is said to exist, and if the missing information is critical to an understanding of site conditions, then data failure occurs. After examining cleanup documents, community members suspected that data gaps and possibly data failure existed in the Army's prior investigations, particularly at the waste landfills, and that some contaminated sites may have been overlooked.

Community members began conducting independent research in the field and in records archives. These two initiatives are discussed below.

1. Field inspections

Community member field inspections were begun in the early 1990s by Saul Bloom, who was a founding member of the RAB, a member of the predecessor Technical Review Committee and director of Arc Ecology. After the RAB was formed in 1994, he encouraged other community members to visit the field to learn more about sites such as landfills, incinerator locations and the Public Health Service Hospital district then being studied for a remediation plan.

In 1996, RAB members reviewed the Army draft work plan for the removal of a portion of the former heating-oil Fuel Distribution System. Community member Mark Youngkin, who was an engineering geologist, realized from examining historical maps that a demolished fuel oil tank site (Tank T-304) was not listed in the work plan.



RAB community members Doug Kern and Mark Youngkin inspecting Mountain Lake and Lobos Creek in 1996

His field inspection of the former tank location, in a heavily wooded area of the Presidio, revealed oil-stained surface soil exposed at the former tank location. Community members requested that the Army add this tank, along with any other missing tanks and fuel lines found on historical maps, to the work plan.

RAB members questioned the thoroughness of Army research in other areas of the Presidio and continued the field inspections. The photographs on the preceding page show community member Doug Kern, a geophysicist, examining a forgotten Army-era water well pump house at Mountain Lake, and Mark Youngkin investigating Lobos Creek, the Presidio's main water supply, in 1996. At Landfill 4, Doug Kern observed a grove of dead trees in the center of the site and questioned whether the cause might be toxicity.

Landfill 2, located in the upper Tennessee Hollow Watershed, was heavily overgrown and obscured by fallen trees. Also in 1996, Mark Youngkin, later joined by other RAB members, observed a protruding 55-gallon ruptured drum and surface water seeps indicating a potential wetland at the toe of the landfill. The drum and potential wetland had not been identified by Army contractors because of concerns over disturbing native plant species and possibly the abundant poison oak.



Damaged drum observed at Landfill 2 and inspection of freshwater seeps at the site by RAB community member LeeAnn Lahren in 1996

Other field inspections found evidence of unrecognized surface springs and seeps at landfills. Chapter 5 relates the discovery of undocumented landfills on a slope above Baker Beach and at the area now known as Thompson Reach. Chapter 6 describes field research on the former Nike Missile Site by three community members in 1997. In Chapter 8, we describe two members' discovery in 2012 of a pipe that carried State Highway 1 runoff into the North Arm of Mountain Lake. The discoveries spurred community members to advocate for more stringent cleanup standards and more protective remedies to address the uncertainties in Army investigations.

2. Archives Research

After reviewing existing cleanup documents in 1994 and 1995, community members suspected that important historical information was missing and the missing information could adversely affect the selection of a final remedy for many sites on the Presidio. Community members inquired with the National Park Service and other government agencies about sources of historical information for the Presidio as a former military base.

During a military base closure, historical documents are shipped for storage to government archives scattered across the country and some Presidio documents had already been moved. An important accomplishment by the National Park Service was the archiving of historical documents collected from Army offices in the Army Records Center (now called the Park Archives and Records Center).

Community member Mark Youngkin inspected the Army Records Center in January 1996 and observed a well-organized collection of valuable information on buildings and open space areas across the Presidio. The most important aspect of the archive was the collection of historical quarter-master reports, basic information maps and building plans. The collection also included missing information on demolished buildings that was not fully discussed in Army documents. In February 1996, he submitted comments on the Draft Final Remedial Investigation Report that included spot checking of several sites in the document with maps and plans at the Army Records Center.



Park Archives and Records Center at former cavalry stable in the Presidio

The spot check, particularly of Building 1244, which had not been recognized as a former motor vehicle repair shop with potential for petroleum contamination, indicated that important historical information was missing from the draft Remedial Investigation Report. It verified that the Army Records Center documents had not been included in the Remedial Investigation Report. Stakeholders were surprised to learn that this large collection of historic documents had been largely ignored in the prior investigations of the CERCLA Cleanup Program. While encouraged by the discovery of the valuable archive, community members were concerned that the Army was not required to catalog the collection at that point.

The investigation phase of the CERCLA program was over and, at the insistence of regulatory agencies, the Army had already performed additional phases of assessment before 1996. The Army and its contractors were disinclined to reopen the assessment phase voluntarily and regulatory agencies could not require further historical research at this late date in the cleanup process. Community members concluded that this important historical archive would not be cataloged in time to influence the conclusions of the impending Feasibility Study, scheduled to be released in 1997. It was possible, however, for a citizen volunteer to carry out the research.

The Park Service granted access to the Army Records Center collection for research purposes by the RAB. Community member Mark Youngkin cataloged the extensive collection, looking for recorded evidence of environmental activity in the detailed plans, maps and documents created by the Army's engineers and surveyors.

The document survey began in February 1996 and a report and comprehensive list entitled “Historical Environmental Document Survey–Army Records Center” (later called the Youngkin List by Army contractors) was submitted to the Army by Mark Youngkin in an advisory letter in June 1996. The Army Records Center yielded evidence of more than 500 potential cleanup sites that had not been documented or had not been fully investigated. Some became significant remediation sites, such as the Barnard Avenue Protected Firing Range in the Tennessee Hollow Watershed.

In November 1996, Mark Youngkin submitted additional detailed analysis of the historical data that revealed demolished buildings at a motor pool facility had not been investigated at Crissy Field (described in more detail in Chapter 4 of this report). The discovery of an unknown firing range along the banks of Lobos Creek was a concern to stakeholders because Lobos Creek is the Presidio’s public water supply. Mark Youngkin concluded that the Army’s Community Environmental Response Facilitation Act (CERFA) parcel designation maps were erroneous in some areas and the use of these maps was later discontinued.

D. Participation in Working Groups

The fourth area of contribution by the RAB was the substantive participation by community members in interagency working groups and summit meetings. This process began when individual community members joined government agency representatives in four working groups formed between 1996 and 1999 to develop expedited cleanup plans for various sections of Crissy Field, which was awaiting a philanthropically funded transformation into waterfront parkland with a restored grassy field at the site of the historic airfield, a tidal marsh and a realigned promenade.

These four working groups, which enabled RAB members to contribute a community voice to the development of remedies, are described in the separate discussion of the Crissy Field cleanup in Chapter 4. The RAB community representatives to the groups reported back regularly to the remainder of the RAB at board and committee meetings.

Later, the interagency working group concept was continued for Main Installation sites. At the invitation of the stakeholders and regulatory agencies, community member Doug Kern, who was the RAB’s volunteer facilitator, regularly attended project manager meetings for a number of years.

In 2006, RAB community members initiated a second type of interagency forum, known as a summit meeting, which is described in Chapter 9. This effort occurred at a point when the Presidio Trust, National Park Service, regulatory agencies and community members appeared to be at an impasse because of disagreements about several aspects of the cleanup and an apparent shortfall in funds to pay for the full cleanup. In 2005, RAB community members proposed and the Trust management supported the concept of a management-level meeting among the agencies to resolve the differences. Summit meetings that included RAB community representation were held between 2006 and early 2009 and were considered successful in enabling the programs to move forward.



THE PRESIDIO OF SAN FRANCISCO RESTORATION ADVISORY BOARD



FINAL REPORT

Twenty Years of Public Participation 1994-2014
in the Environmental Cleanup of Our New National Park

Chapter 4. Crissy Field: Removing Hot Spots

The transformation of Crissy Field from a derelict former Army airfield and asphalt landscape to spectacular shoreline parkland was the first major reuse project of the National Park Service at the Presidio. It was carried out between 1999 and 2001 by the Park Service together with the Golden Gate National Parks Association (later renamed Golden Gate National Parks Conservancy) with the aid of philanthropic donations. The 130-acre field on the shore of San Francisco Bay is now the most visited area of the park and is considered by many to be the jewel of the Presidio. It encompasses a re-created 20-acre tidal marsh, a 28-acre grassy meadow at the site of the former airfield, 16 acres of restored sand dunes, picnic areas, an environmental education center, recreation facilities and a realignment and expansion of the popular Golden Gate Promenade along the shore.

Before the restoration could be carried out, however, Army-era contamination had to be cleaned up and a large landfill removed from the historic site of the marsh. Much of this remediation was planned and carried out on a fast-track basis between 1996 and 1999, relatively early in the Restoration Advisory Board's existence. The cleanup was a complex project. Because of its flat terrain and access to the bay and transportation, the area was a prime location for light industrial activities needed to support Army operations. These facilities included gas stations and repair shops for the Army's fleet of vehicles; depots and pipelines for gasoline and heating oil brought into the base at various times by barge, rail and tanker truck; and storage buildings for materials such as oil, paint, pesticides and transformers.



Present-day Crissy Field at Presidio of San Francisco, seen from the west

The long history of these activities at Crissy Field created numerous soil and groundwater contamination problems. Hazardous contaminants that exceeded regulatory standards included petroleum hydrocarbons, chlorinated solvents, lead and other metals and pesticides such as DDT. The map below shows the cleanup sites at Crissy Field.



Map of cleanup sites at Crissy Field area of Presidio of San Francisco. Adapted from Presidio Trust reports of 2014 supporting rescission of Water Board Order and completion of DTSC Consent Agreement

The 37-acre landfill in the center of Crissy Field, known as Fill Site 7, was originally placed over a lagoon and marsh to create land for a racetrack and buildings of the Panama-Pacific International Exposition of 1915. After the exposition, the Army built Crissy Field, a pioneering military airfield, on the site in 1921. In 1998, Fill Site 7 became the first Presidio landfill to be treated with “clean closure,” or excavation and removal of all contaminated soil. (The term Crissy Field is now used to refer to the entire shoreline area and not just the former airfield.)

The Army also built three separate clusters of gas stations and vehicle maintenance facilities along Crissy Field. A number of these stations were found to have leaked petroleum, waste oil, solvents and other substances from storage tanks and pipelines into the soil and groundwater. One complex was the Building 900s area at the west end of the field, where fueling and repair stations originally created for aircraft were converted to use by vehicles. (In Army tradition, sites at the Presidio are identified by building numbers, even if the building has been demolished or if the structure is not an actual building.) A second cluster was in the center of Crissy Field in the Building 600s area. It included a basewide Consolidated Motor Pool, which

was demolished in 1984 to make way for the new Commissary of 1989, and a nearby fueling depot and maintenance facility centered around Building 637. The third set was a pair of gas stations farther east at Buildings 207 and 231.

At the eastern end of the field, the Directorate of Engineering and Housing, known as DEH, provided administrative and maintenance services. Its 21 buildings included vehicle repair shops, two pesticide storage buildings and areas where paints and transformers were stored. Crissy Field also had several shooting ranges, which resulted in contamination of soil by lead bullets, and, in the case of the shoreline skeet range, polycyclic aromatic hydrocarbons from skeet debris.

Some of these sites were remediated in the Petroleum Cleanup Program under cleanup and abatement orders issued by the California Regional Water Quality Control Board in 1991, 1996 and 2003. These included the gas station complexes at Buildings 637 and 201/237, among other sites. These cleanup plans were known as Corrective Action Plans and were approved and supervised by the Water Board. They were carried out at various times between the 1990s and 2014. In addition, many petroleum storage tanks had been previously removed in the petroleum cleanup project carried out by the Army beginning in the 1980s.

Other Crissy Field sites, including Fill Site 7, were addressed under the CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) Cleanup Program for hazardous substances, described in previous chapters of this report. The plans for these sites were known as Remedial Action Plans and were approved under oversight of the California Department of Toxic Substances Control. Because of the urgency of preparing Crissy Field for the reuse project, most of the sites in this program were detached from a larger category of sites known as the Main Installation and put into a fast-track process between 1996 and 1999.

Community members of the Presidio Restoration Advisory Board participated in the development of both categories of plans in several ways, along the lines of the RAB activities described in Chapter 3 of this report. We discussed the plans at RAB board and committee meetings, reviewed documents, submitted formal comments to the Army and regulators, conveyed information to the wider public, and participated in decision-making working groups.



Abandoned underground storage tanks uncovered during removal at bluff above Crissy Field. Photo: Presidio Trust

Because of the complexity of the Crissy Field cleanup, this chapter does not aim to recount a complete history. Instead, it focuses on five projects where we believe the RAB's participation contributed substantively to the outcome. These projects were:

- 1) Participation in a working group to develop a Remedial Action Plan for the DEH area in 1996;
- 2) Development of the Crissy Field Remedial Action Plan for the remaining contamination sites in the CERCLA program in 1997;
- 3) Independent research in 1996 that alerted the Army and regulators to the need to investigate the former motor pool complex under the Commissary area;
- 4) Participation in the development of a draft Corrective Action Plan for the Buildings 207/231 petroleum site in 1998;
- 5) Participation in a working group to prepare a Corrective Action Plan for the Building 637 petroleum site in 1999.

These projects are described below, following a brief summary of the history of Crissy Field.



View of restored Crissy Field Marsh and tidal lagoon with Golden Gate Promenade in background. Photo: Presidio Trust

A. The Evolution of Crissy Field

Before European settlement, the Ohlone people used the shoreline estuary for harvesting fish and shellfish and lived in small villages nearby, leaving behind shell middens on the site. In the 18th and 19th centuries, Spanish and Mexican settlers established farms and grazed cattle in the interior of the Presidio, but had little impact on the shoreline. After the U.S. Army took control of the Presidio in 1846, it considered the tidal wetland a wasteland best suited for dumping and draining. Army debris and garbage as well as rubble from the 1906 San Francisco earthquake and fire were dumped into the marsh. An Army planning engineer, Major William Harts, wrote in a 1907 report that the swamp was “a waste of valuable land” and proposed filling it in to provide needed space for drill grounds, ceremonies and buildings for the soon-to-expand Presidio base.

The filling of the lagoon and marshlands was carried out in 1912 by the organizers of the Panama-Pacific International Exposition of 1915, who had won the Army's

approval to hold the fair along the shore. According to a 1994 Crissy Field history, “The Last Word in Airfields,” by Park Service historian Stephen Haller, a large suction dredge drew more than 320,000 cubic yards of sand and mud from the bottom of the bay and pumped it into the marsh through a large pipe. Exposition engineers then built a mile-long racetrack used for car racing and some early aviation demonstrations on the west side of the now-filled shore and constructed the fair pavilions on the east side. After the exposition ended and the United States entered World War I in 1917, the shore was covered with temporary barracks, known as the North Cantonment, for departing soldiers. A rail line was built along the shore to carry soldiers and material to and from transport docks at nearby Fort Mason.



91st Observation Squadron aircraft at Crissy Field, circa 1930. Photo: National Park Service

In 1921, the Army constructed Crissy Field, the first air coastal defense station on the West Coast, on the former racetrack area. It became the scene of important aviation history in the 1920s, including the first dawn-to-dusk transcontinental flight. The original surface was grass and clay; it was partially paved in 1934 and fully paved during an extensive upgrading in 1958-60. In 1936, the Army Air Corps closed Crissy Field as a first-line air base because of problems with fog, wind, and airspace obstruction by the Golden Gate Bridge, which was then under construction. The field remained in use for light planes and helicopters until the 1970s, however.

Between the early 1900s and the 1980s, the Army built a series of light-industrial and administrative buildings along the inland southern side of Crissy Field to support airfield and basewide operations. These included airplane hangars, aircraft



Aerial view of Army land use at Crissy Field in 1928. Photo: Presidio Trust

and vehicle fueling and repair facilities, warehouses, petroleum and heating-oil storage tanks and pipelines, the base's Consolidated Motor Pool and, in 1989, the new Commissary and parking lots, which replaced much of the former motor pool.

The railroad line built along the shore in 1917 remained in use until 1967 and during much of that time was used to transport gasoline, diesel fuel and heating oil to the base. After the motor pool and fuel depot complex was developed in the Building 600s area beginning in the late 1920s, gasoline for airplanes and vehicles was unloaded from railway tank cars to a large pumping station at that site and piped underground to either the gas station at Building 637 or the fueling facilities in the Building 900s area next to the airfield. The Army had also built another, earlier pumping station in the Building 900s area in the early 1900s to receive heating oil that was piped to Army offices and housing throughout the base between that time and the early 1960s. The heating oil was originally delivered by barge.

During World War II, the Presidio was a major training and embarkation center for troops sent to the Pacific, and temporary barracks and storehouses were built on the eastern and western ends of Crissy Field. A former air mail carrier hangar at Building 640 was converted to secret use by the Military Intelligence Service Language School for training Japanese-American soldiers to serve as interpreters and battlefield interrogators. Trains carried wounded soldiers returning from the Pacific from Fort Mason to Crissy Field for transport to the Presidio's Letterman Army Hospital, which treated 73,000 soldiers in 1945 alone.

In the final years before the Army left the Presidio, activity at Crissy Field declined. When the base was transferred to the National Park Service in 1994, much of the area had the appearance of a concrete and asphalt wasteland. The renewal project planned by the Park Service and Conservancy was aimed at restoring the ecology, creating shoreline parkland and at the same time honoring the history of Crissy Field.

During the remediation of Crissy Field in 1998 and 1999, the Army excavated more than 89,000 tons of contaminated soil from several different sites in the area. This total included 16,717 tons from Fill Site 7; 650 tons from the East of Mason section; 31,545 tons from two former shooting ranges; 1,650 tons from the



Aerial view of Crissy Field in 1995
Photo: National Park Service

Building 637 vicinity; and 39,000 tons from the Building 900s area on the west. Another 4,000 tons was excavated from the DEH area in a separate project in 1998.

At Fill Site 7, an additional 230,000 tons of clean soil and 70 acres of asphalt and concrete were removed to allow the restoration of the tidal marsh. This additional excavation was coordinated with the removal of the polluted soil, but was carried out as part of the Park Service and Conservancy restoration project and not as part of the environmental cleanup program. The clean soil was moved to the western part of the field to create the grassy meadow commemorating the airfield, and the asphalt and concrete were crushed and recycled for use underneath pathways and parking lots.



Abandoned rail tracks and air field at Crissy Field in the 1980s or early 1990s. Photo: National Park Service

In an event described by Conservancy Chief Executive Officer Greg Moore as “an historic moment in the restoration of Crissy Field,” an excavator broke through the barrier between the marsh and the bay during a ceremony on November 9, 1999. The opening of the channel allowed tidal salt water and fresh water from tributaries in the Tennessee Hollow Watershed to the south to merge for the first time in 87 years.



Opening ceremony of Crissy Field Marsh tidal channel on Nov. 9, 1999. Photo: National Park Service

After the cleanup was completed, more than 3,000 volunteers working in the restoration area planted 165,000 plants in the restored dunes and marsh. The revitalized landscape now provides habitat for wildlife that had not been seen in the Presidio for decades, including more than 17 fish species and 135 bird species identified in the recreated tidal marsh.

The Golden Gate National Parks Conservancy has called the Crissy Field project “a model for community-led restoration of urban parklands around the world.” The photo on the next page shows the grand opening of the restored tidal marsh and airfield meadow on May 6, 2001.



Grand Opening of restored Crissy Field Marsh and airfield meadow on May 6, 2001. Photo: National Park Service

B. DEH Working Group

The Army Directorate of Engineering and Housing, known as the DEH, was a 4.4-acre site at the east end of Crissy Field that was initially developed in the early 1900s and expanded between the 1940s and 1970s. It historically contained 21 buildings and structures used for administrative services, vehicle maintenance and equipment and materials storage. They included several vehicle repair and maintenance shops; a building for mixing and storing pesticides, which had a 1,500-gallon underground storage tank; another pesticide storage building; and areas for storing paint, transformers and drums of waste oil.

Now known as the East Beach area, the DEH was the first section of Crissy Field that needed to be remediated rapidly to allow the start of the Crissy Field restoration project. The Army had removed several petroleum and heating-oil tanks, pipelines and the pesticide waste tank in 1994 and 1995 and the Park Service had demolished the buildings and removed concrete foundations, concrete and asphalt paving and underground utilities in early 1996. But petroleum, pesticide and lead contamination above regulatory levels had been found in the soil and groundwater, as well as trichloroethene solvent in groundwater, and the pollutants had to be addressed before the restoration project could begin.

By 1996, the Army's CERCLA remediation program at the Presidio was stalled because of disputes among the Army, National Park Service and regulatory agencies

over cleanup levels, regulatory standards, future land use, the adequacy of the Army's research, and the selection of remedies. The 1996 independent research by RAB community members, described in Chapter 3 of this report, and the resulting disclosures of missing historical information and inadequate investigation at Crissy Field were a factor in focusing the attention of community groups, regulatory agencies, and congressional representatives on the challenges of the upcoming Crissy Field restoration project. The possibility of previously unidentified contamination under Crissy Field and the potential



Demolition of Directorate of Engineering and Housing (DEH) at Crissy Field in 1996 prior to remedial excavations

cost of addressing it posed a threat to the timely completion of the project.

As a way of addressing the situation quickly, the stakeholders agreed to undertake a working group process aimed at developing a consensus Remedial Action Plan for the DEH area. The concept of a team approach was initially suggested by the National Park Service's agency representative on the RAB, Brian Ullensvang; it was hoped that completing a plan for the DEH, as a relatively simple and discrete remediation area, could open the way to accomplishing a plan for the more complex remainder of Crissy Field. One purpose of the project was to see whether the process would provide a new model of collaborative effort in developing cleanup plans.

The DEH working group was made up of representatives of the BRAC Cleanup Team, including the Army, National Park Service, state DTSC, state Water Board, and U.S. Environmental Protection Agency. The team invited RAB community representatives to participate and help prepare the decision document. RAB community members Robert Reinhard, Doug Kern and Mark Youngkin attended meetings of the working group in the fall of 1996, bringing a community perspective to the process and submitting new historical information on the location of former aboveground storage tanks, fuel distribution pipeline, sumps and a pesticide storage and mixing area that was missing from existing Army assessment documents. They reported back to the remainder of the RAB at board and committee meetings.

A draft Remedial Action Plan was completed in January 1997 and approved later that year by the DTSC. Most participants and observers considered the final work plan a positive collaboration among the Park Service, regulators, the Army and the public, and the RAB was listed as a contributor author on the title page of the draft document.

The Remedial Action Plan called for excavation and off-site disposal of contaminated soil at five locations in the DEH area and for continued monitoring of groundwater, where it was expected that the contamination would be dissipated by the combination of removal of the affected soil and natural attenuation. The Department of Defense advanced funds to the Army to perform the cleanup on an expedited basis, which the Army's contractors carried out between November 1997 and August 1998. They excavated and removed 4,000 tons of contaminated soil, finishing the work in time for the start of the Crissy Field restoration project.



View east during Fleet Week 2014 of new recreation facilities at former DEH area

The photograph above shows the former DEH area following the cleanup and subsequent reconstruction of the realigned pedestrian promenade, East Beach, picnic areas, a visitor cafe, an environmental education center, a wind and solar power station, and a windsurfing landing and staging area, as seen looking to the east. The photograph below shows the promenade and East Beach looking westward toward the restored Crissy Field Marsh, tidal channel and Golden Gate Bridge.



View west during Fleet Week 2014 of East Beach, restored marsh and tidal channel

C. Crissy Field Remedial Action Plan

In 1997, the National Park Service and the Golden Gate National Parks Conservancy urgently needed to have a plan in place for cleanup of the remainder of Crissy Field so that the restoration project could proceed. In the wake of the success of the DEH Remedial Action Plan, the BRAC Cleanup Team decided to use a similar working group approach to prepare the larger Crissy Field Remedial Action Plan. RAB community members were again invited to participate.

In June 1997, Fill Site 7 and approximately 10 other hazardous waste sites at Crissy Field were consolidated into a unit for development of a fast-track remediation plan. Fill Site 7 had been found during the Army's Remedial Investigation to have areas of contamination from chromium, copper, lead, mercury, nickel, zinc and petroleum hydrocarbons. The East of Mason section, which lay between Fill Site 7 and the DEH, was polluted with pesticides.

Other sites in the Crissy Field unit included several former vehicle fueling and maintenance facilities in the Building 900s area on the west, where soil and groundwater were contaminated with petroleum, solvents and metals.

At the center of the field, the sites included the hangar at Building 640 (the site of the World War II interpreter training school for Japanese-American soldiers) and another hangar at Building 643. The two hangars had most recently been used until the 1990s for repairing vehicles and electrical equipment and the soil in the area was contaminated with lead at levels requiring remediation. The Crissy Field unit also addressed three shooting ranges: the Crissy



Former Crissy Field machine gun range.
Photo: National Park Service

Field Rifle Institute, the Crissy Field Skeet Range and a firing range at Building 924.

Building 937 was an aircraft hangar that was originally used for aircraft fueling and maintenance and later converted to the main maintenance shop for most of the vehicles used at the Presidio. In the early 1980s, the Army discovered that a leak from a pipe leading to a waste oil tank at the site resulted in a layer of between eight inches and three feet of what the Army called “bulk oil” – including diesel fuel, waste oil, paint thinners and degreasing solvents – floating on the groundwater table underneath the building. This building was the site mentioned in Chapter 2, where an Army consultant reported in 1986 that the groundwater contamination plume had the potential to be advancing toward the nearby bay.



Restored airfield and hangars at Building 900s area at Crissy Field with Building 937 shown at far right in front of the Golden Gate Bridge

Along with the gas station at Building 231, Building 937 was the subject of the Water Board's first Presidio cleanup order in 1991. Another nearby structure, Building 979, which was demolished in 1996, had been used as vehicle repair facility and gas station and had also leaked chlorinated solvents from a waste oil tank into groundwater. Although the Army had removed the underground tanks and pumped contaminated groundwater from the 937 and 979 sites by the mid-1990s, both sites were found to have significant groundwater contamination. Building 979 had a groundwater plume of chlorinated solvents, which as of 1997 appeared to be merging with the combined solvent and gasoline plume from Building 937.

The two plumes were among four sizable groundwater plumes that posed concern at Crissy Field. The other two plumes contained gasoline and were associated with the gas stations at Building 637 and 207/231, which are described in later sections of this chapter. The map shows the location and estimated size of the four plumes at Crissy Field in 1997.



Locations of groundwater plumes at Crissy Field in 1997. Source: U.S. Army, Draft Remedial Action Plan, Crissy Field Area, Oct. 3, 1997, Adapted from Figure 4.2, Sites of Remedial Activity, Crissy Field Area.

One point of discussion in the development of plans for the Building 937 area was an experimental vacuum vaporizer system installed by the Army on the northeast side of the building in 1994. The system, known as Unterdruck-Verdampfer-Brunnen (UVB), was intended to treat the contaminated groundwater and was put in place as an interim action in response to the 1991 Water Board order. Beginning in 1994, RAB agency and community members had expressed concerns that the system might not be effective. In July 1997, the Army announced, on the basis of disappointing results of a dye-tracing test, that the system had not been operating effectively and that the Army did not know the reason why. Community member Mark Youngkin requested and reviewed the historical documents for the UVB installation, which were provided in October 1997. He submitted a comment letter to RAB community,

agency and Army members in November 1997 noting that the technical documents revealed that the well drilled in 1994 was inadequate for the UVB system because it did not produce enough water, and that an Army consultant in 1995 had recommended not installing the UVB system in the ineffective well and drilling a new well instead. The Army had gone ahead with installing the UVB system in the original well. The system was later dismantled during the Crissy Field cleanup in 1998.

The Crissy Field working group met on an intensive schedule of one several-hour meeting every week from July through September 1997 to develop the cleanup plan. Several RAB community members participated and joined agency and Army representatives in discussing data, identifying data gaps, evaluating alternatives and reviewing drafts of the plan. The working group members gave status reports to the full RAB at meetings and via e-mail.

By the end of September, the group had completed a draft plan, which was published by the Army on Oct. 3, 1997. During the five-week public comment period, individual RAB community members (as well as agencies and civic groups) submitted comments urging inclusion of more chemicals of concern and stricter regulatory standards for some contaminants. The comments also stated that the 1991 Water Board order should have been included as one of the regulatory requirements (known as Applicable or Relevant and Appropriate Requirements, or ARARs).

In late November, the Army announced it had reached agreement with stakeholders on a revised plan that included consideration of additional contaminants, more confirmation sampling at certain sites and recognition of the Water Board order as a relevant requirement. The final plan was completed in April and signed on April 21, 1998. Field construction by the Army's contractor began that same day, with initial excavation in the East of Mason area and a geophysical survey to find remnants of a crushed waste drum buried in the soil at Building 979.

The plan, carried out in 1998 and 1999, provided for excavation of contaminated soil and off-site disposal to ensure that all polluted soil and fill were removed from Crissy Field. Groundwater monitoring was required at the Building 937 and 979 sites to determine whether removal of the affected soil had alleviated the groundwater plumes.

At Fill Site 7, the Army excavated 16,590 tons of metal-contaminated soil in six areas and 127 tons of petroleum-contaminated soil. Because of the uncertainty in historical research, the plan provided for extensive grid sampling to determine whether the landfill contained



Excavation of skeet-contaminated sand in 1998

additional areas of contamination. The plan also required thorough confirmation sampling to verify that toxic materials did not remain in the footprint of the future tidal lagoon and marsh. Fill Site 7 thus became the first Presidio landfill to have contamination removed in the process known as clean closure.

About 650 tons of pesticide-affected shallow soil were removed from the East of Mason section and 31,545 tons of lead- and hydrocarbon-contaminated soil were excavated from the former Crissy Field Rifle Institute and Crissy Field Skeet Range. In the Building 900s area, the Army excavated and removed 39,000 tons of contaminated soil and fill.

In 2001, the Presidio Trust, which had taken over the cleanup responsibility for the base in 1999, installed a network of 18 groundwater wells to guard the bay and monitor the natural degradation of residual petroleum hydrocarbons and solvents in the two groundwater plumes in the 900s area. By 2004, the monitoring indicated that chemical constituents in groundwater were below the cleanup levels set by the Water Board for protection of saltwater aquatic life in San Francisco Bay.



Recent view of Golden Gate Promenade and airfield meadow at Crissy Field

D. Commissary and Presidio Motor Pool

Independent research by community members was a significant factor in the investigation and remedial action at the Commissary area of Crissy Field. The 93,000-square-foot new Commissary, designated as Building 610, was built between 1987 and 1989 adjacent to the area of the now-restored tidal lagoon and marsh. A former commissary building, Building 609, was included in the Army's CERCLA Remedial Investigation because a historic incident report listed a small pesticide spill in 1980; apparently a retail bottle of pesticide fell off a store shelf.

The independent research conducted by RAB community member Mark Youngkin at the Army Records Center in 1996, discussed in Chapter 3 of this report, revealed, however, that the Commissary investigation was flawed. The Presidio's building numbers had changed over time and Army contractors had unintentionally investigated the wrong building location, sampling soil at the site of a former refrigerated warehouse at Building 653 instead of former Building 609. (The sampling did show occurrences of pesticides, including dieldrin and DDT, but at levels below the

standards that would have required remedial action.) Mark Youngkin submitted the information to the Army in a May 2, 1996 comment letter on the Draft Final Remedial Investigation Report, but the research material was not used and the error was carried over in the Final Feasibility Study Report for the Main Installation of April 1997.

Of greater concern to stakeholders, the independent research also showed that the Army's investigation had not accounted for approximately 20 buildings and structures of the former Consolidated Motor Pool that had been demolished to allow construction of the Commissary. The sites of these structures were now buried underneath the Commissary and adjacent parking lots. The former buildings included the pumping station where aviation and vehicle fuel had been delivered by railroad tank cars, aboveground and underground gasoline storage tanks, waste-oil tanks, vehicle repair shops, and fuel pipelines that led to the nearby gas station complex at Building 637 and to the fueling stations in the Building 900s areas. In the May 1996 comments and additional letters submitted in June and November, Mark Youngkin suggested that the area could contain previously unidentified petroleum contamination.

In 1997, after the Crissy Field sites were detached from the Main Installation and as the development of the Remedial Action Plan was under way, the Army contracted with IT Corporation to conduct a records review of former and existing buildings at the Commissary area and evaluate whether historic buildings uses may have resulted in significant contamination. The study, completed in December 1997, verified the RAB's independent research. It concluded, however, that the likelihood of significant contamination from the motor pool was low. No further investigation or remedial action occurred before the Army transferred the cleanup responsibility to the Presidio Trust in May 1999.

Later in 1999, a habitat restoration crew working in the new Crissy Field Marsh notified the Presidio Trust of groundwater seeps in the southwest corner of the newly constructed tidal lagoon with a gasoline-like odor. The Trust conducted a series of investigations to identify and delineate the source of petroleum contamination in the marsh shoreline seeps. Gasoline and diesel contamination of soil and groundwater was discovered at the historic Consolidated Motor Pool location where the railroad fuel pumping station and fuel storage area formerly stood.

In 2001, the Trust excavated 3,750 tons of petroleum-contaminated soil beneath Mason Street



Excavation of petroleum-contaminated soil during Commissary seeps interim source removal action. Source: Presidio Trust, Draft Commissary Seeps Interim. Removal Action Plan, January 2002, prepared by Treadwell & Rollo, Inc.

and part of the Commissary parking lot in an interim removal action. In 2002-2003, it conducted expanded investigations to characterize the degree and extent of potential contamination at the former motor pool area. In 2007, the Water Board approved a Corrective Action Plan for removal of petroleum- and metal-contaminated soils and the Trust conducted the additional remedial excavations the following year. The Water Board issued closure certification in 2009. The certification includes a land use control mandate that requires soil management and worker safety measures if earth is excavated or disturbed and further remediation if the area is developed as expanded marsh habitat in the future.



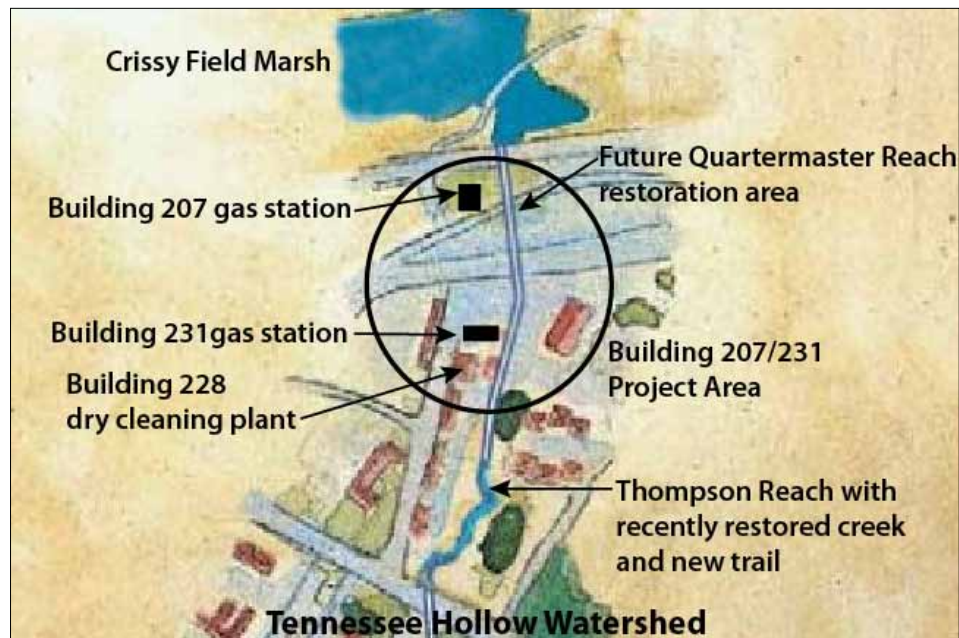
View of restored Crissy Field Marsh seen from the west; former Commissary petroleum seeps area was along southern shoreline at right of photo

E. Building 207/231 Petroleum Site

Concurrent with the Crissy Field Remedial Action Plan, the Army was preparing a Corrective Action Plan for the Water Board on the former gasoline stations at the Building 207/231 area at the southeastern edge of the Crissy Field district. The Building 207 site is immediately north of the Doyle Drive highway, which was being replaced by the new Presidio Parkway in 2014, and the 231 gas station site is immediately south of the highway. Beginning in the 1900s, the Army constructed service buildings and warehouses operated by the Main Post quartermaster in the area.

The area is part of a 9.5-acre section now known as Quartermaster Reach, which lies directly southeast of the Crissy Field Marsh. The section has been proposed for the expansion of wetlands related to the marsh and for daylighting an 850-foot length of the Tennessee Hollow Watershed stream by moving that portion of the creek from an underground culvert to the surface of the land. To allow expansion of the wetlands, the petroleum contamination at the two former gas stations had to be remediated to meet saltwater and freshwater ecological standards.

When completed, the Quartermaster Reach restoration will provide a connection between the marsh and another section of the watershed known as Thompson Reach, where a 450-foot stretch of the stream and native habitat were restored in 2005 after the removal of a landfill. (The clean closure of that landfill, Fill Site 6a, and the restoration of Thompson Reach are discussed in Chapter 5 of this report.) RAB community member Doug Kern, acting in his capacity as a member of the



Map of Building 207/231 project area in Quartermaster Reach. Adapted from Presidio Trust, Tennessee Hollow Upper Watershed Revitalization Project Environmental Assessment 2007

Urban Watershed Project, had provided a conceptual drawing of the lagoon-stream transition area in 1997, in support of the Presidio Trust's and National Park Service's planned restoration of a number of sections of the 270-acre Tennessee Hollow Watershed. The concept was incorporated into the 2010 Quartermaster Reach Environmental Assessment and Doyle Drive replacement project documents.

The gas station at Building 231 was built in 1950 and operated as an automobile service station for privately owned vehicles at the base until 1995. Together with Building 937, discussed earlier in this chapter, it was the subject of the Water Board's first petroleum cleanup order at the Presidio in 1991. The service station had four 10,000-gallon underground storage tanks. The nearby Building 207 gas station to the north formerly contained three 10,000-gallon tanks. Between 1988 and the early 1990s, the Army removed the tanks, pumped out 4,000 gallons of gasoline found floating on the groundwater table, excavated a limited area of petroleum-contaminated soil, and temporarily operated a soil vapor-groundwater extraction system.

The remediation project area also included a dry cleaning plant, Building 228, which stored solvents in three 750-gallon tanks. Although all the tanks had been removed, contamination remaining in the soil and groundwater included petroleum hydrocarbons, volatile organic compounds such as toluene and xylenes, and the fuel additive methyl tertiary-butyl ether (MTBE).

In 1998, RAB community members participated in working group meetings that included an innovative decision modeling process hosted by the Army Corps of Engineers. Participants in the meetings reviewed data and contributed information to create an interactive remedial strategy in which factors such as cost, protection of

human health, protection of environment, protection of wetlands and remediation schedule requirements could be balanced against one another. After several months of meetings, the Army terminated the sessions and issued a Draft Corrective Action Plan in early 1999.

The plan was never accepted by the Water Board, however. In 2003, the Presidio Trust, which had taken over the cleanup responsibility in mid-1999, reported that soil and groundwater data in the Army documents were inadequate to determine an appropriate remedy. The Trust performed additional investigations to fill existing data gaps and issued a new Corrective Action Plan in 2007 and the implementation work plan in 2008. The Trust submitted addenda to the Corrective Action Plan in 2008 and 2012 as new information continued to be collected for the remedial design.

In July 2012, the Trust completed remediation at the area in accordance with the final work plan. The remedial construction was coordinated with the Doyle Drive demolition and new Presidio Parkway Project construction activities. Trust contractors excavated 24,669 tons of petroleum-contaminated soil from the three building sites. Subsequently, 334,000 gallons of contaminated water were extracted from the excavated area at Building 207 and 324,000 gallons from Building 231. The contaminated water was filtered and discharged to the sanitary sewer system. Residual contaminated soil beneath a historic wall at Building 228 was addressed with an innovative in-situ thermal remediation method.



Excavation of petroleum-contaminated soil at Building 207/231 area in 2012

F. Building 637 Working Group

The Building 637 working group was the last major consensus decision-making process for Crissy Field in which RAB community members participated, and was the first in which the Trust was the lead cleanup agency. The Building 637 area was formerly operated by the Army as a petroleum, oil and lubricant yard for the nearby Consolidated Motor Pool. It contained five fueling islands, underground pipelines, three 20,000-gallon gasoline tanks and three 5,000-gallon diesel fuel tanks.

The facility was deactivated in 1989 following damage caused by the Loma Prieta earthquake. In the 1990s, the Army removed the tanks, excavated petroleum-contaminated soil, and operated a groundwater extraction system to remove up to six feet of floating petroleum product from the surface of the groundwater. Additional

sampling in the late 1990s had determined, however, that previous Army cleanup activities did not address the full extent of petroleum contamination in the Building 637 area. The Army prepared a draft Corrective Action Plan in 1999 that was not implemented.

After assuming responsibility for the remediation program in May 1999, the Presidio Trust proposed writing a new Corrective Action Plan to address the remaining contamination. At that point, the Crissy Field restoration project was well under way and there was a pressing need to complete a more comprehensive cleanup at Building 637 that would protect the future restored marsh and tidal lagoon from petroleum contamination and allow construction activities to proceed on time.

The Presidio Trust, RAB and National Park Service advocated a working group approach to expedite the discussion and approval of the plan and preferred remedy. A group was formed that included representatives of the Trust, Park Service, regulatory agencies and the RAB community sector. All RAB community members were welcome to participate and at least six attended the working group meetings at various times. During two months of meetings, the stakeholders identified data gaps, formulated additional sampling plans, analyzed the completed data sets, discussed and resolved differences, and formulated remedies to address the contamination issues. The final Corrective Action Plan called for excavation of contaminated soil and enhanced bioremediation of groundwater, which required less long-term monitoring than the approach that had been proposed by the Army. It provided for a faster and more active cleanup at less cost than previous plans.

The Water Board approved the plan in August and cleanup work was completed by October 1999, in an unusually fast schedule for a military base cleanup.



Condition of Building 637 project area in 1993. Source: Ramos Environmental Engineering, Tank Closure Report, Tank #637 Aboveground Tanks, prepared for U.S. Army, 1993



Petroleum fuel loading facility at Building 637 project area in 1993. Source: Ramos Environmental Engineering, Tank Closure Report, Tank #637 Aboveground Tanks, prepared for U.S. Army, 1993

The Trust removed 1,650 tons of contaminated soil from six locations in the area and treated groundwater with an oxygen-releasing compound. The Water Board issued a No Further Action closure certification in 2008.

In March 2013, however, during technical studies associated with the Doyle Drive replacement project, petroleum contamination was again discovered in the southeastern portion of the Building 637 area. The contamination remained in data gap areas between former sampling locations. The Trust investigated the new area in June 2013 and prepared a corrective action work plan that was approved by the Water Board in September 2013. It completed excavation of 9,200 tons of contaminated soil in January 2014, prior to the start of construction for the new Presidio Parkway Project. During the excavation, 260,000 gallons of contaminated groundwater were extracted, filtered and discharged to the sewer system.



Excavation of petroleum-contaminated soil at Building 637 project area in 2013. Photo: Presidio Trust, Building 637 Area Corrective Action Completion Report, prepared by Erler & Kalinowski, Inc., May 2014, Photo 13

The working group concept at Crissy Field presented RAB community members with an opportunity to participate substantively in the decision-making process in an open and respectful environment. The views of community members were seriously considered and incorporated into the final design and Corrective Action Plan. As a result of the success of this process, RAB community members passed a resolution entitled Public Participation, Building 637 Working Group Process, at the September 14, 1999 board meeting. The resolution commended the Trust for the working group approach and urged continued collaboration with the RAB as a participant.



Recent view of restored Crissy Field Marsh seen from the south



THE PRESIDIO OF SAN FRANCISCO RESTORATION ADVISORY BOARD



FINAL REPORT

Twenty Years of Public Participation 1994-2014
in the Environmental Cleanup of Our New National Park

Chapter 5. Landfills: The Legacy of Clean Closure

The Presidio of San Francisco Restoration Advisory Board considers the clean closure of military landfills an important accomplishment of the environmental remediation program. Clean closure, in the environmental remediation process, is the complete excavation and off-site disposal of hazardous substances from a contamination site, such as an abandoned landfill. It results in a permanent remedy that is most protective of public health and the environment and requires no further maintenance or monitoring.

At the time the RAB was founded in 1994, it was common knowledge that the Army rarely, if ever, removed landfills from former bases. The presumptive remedy was to leave landfills in place, with either no action or the use of containment caps and/or restrictions on future land use if needed to protect the public from exposure to hazardous substances.

In this chapter, we describe how the innovative concept of clean closure was advocated by RAB community members and other civic groups, as well as the National Park Service, and eventually adopted by the newly formed Presidio Trust and successfully employed at the Presidio to benefit the new national park.



Restored habitat and section of California Coastal Trail on Presidio coastal bluff following removal of Army-era landfill

In all, a concerted effort by the community, the Trust, the Park Service and other stakeholders resulted in the clean closure of 12 landfills and removal of a total of more than 350,000 tons of landfill waste and debris from the Presidio. These cleanups provided increased opportunities for public access to parkland and restoration of natural habitat in the new park. A landfill legacy that could have been one of permanent contamination became instead one of restored open areas that are now cornerstones of the new park's natural terrain and wildlife sanctuaries.



Present-day view of Thompson Reach, a section of Tennessee Hollow Watershed restored after removal of landfill in 2005. Photo: Presidio Trust

A. The History of Army Landfills

Between the early 1900s and the 1970s, the Army legally dumped its trash and waste in forgotten firing ranges, quarries, wetlands and natural ravines across the Presidio. In the initial environmental assessments of the 1980s, the Army characterized these dumping grounds as innocuous, containing ordinary household trash, inert demolition debris and tree trunks believed to pose little risk to the Presidio. Eventually, it was learned that the waste in the abandoned landfills contained elevated concentrations of hazardous lead and other heavy metals, along with residual petroleum hydrocarbons, industrial solvents, pesticides, and other chemicals. Much of the toxic metal was attributed to ash from Army-era incinerators formerly located in or near the dumping grounds. Other hazards such as biomedical and laboratory waste and unexploded ordnance (UXO) were also found within the landfill debris.

In addition, the Army had dumped large amounts of construction debris from the demolition of former buildings in many areas of the Presidio to create level ground for new buildings or fill in erosion sites along coastal bluffs. While this type of debris was considered harmless prior to the 1980s, we now know that demolition debris is often hazardous, containing lead, heavy metals, pesticide residue, polychlorinated biphenyls (PCB) and other harmful contaminants.



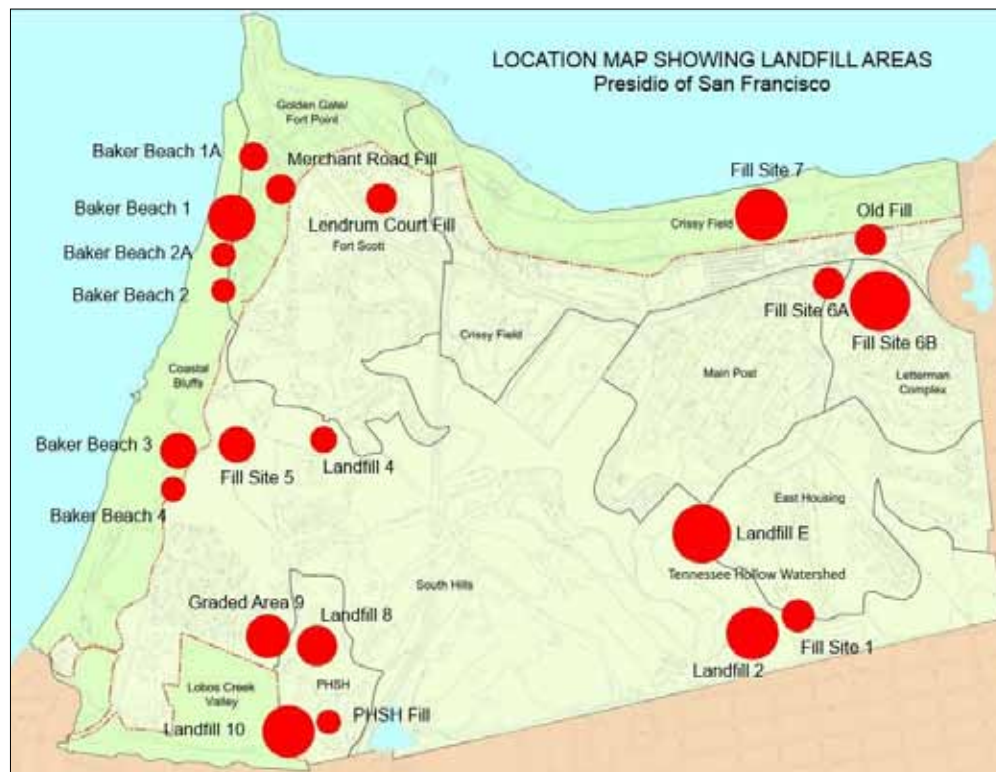
View in 2008 of Army-era incinerator at Landfill 2

Of particular concern to community members and other stakeholders, the military landfills had not been engineered for containment of toxic waste, protection of the environment, or stability in the event of an earthquake. This type of protective engineering is now common with modern landfills. The older Army landfills, however, were haphazard dumps with no documentation on the fill contents or past disposal practices. They often filled in wetlands and streams, potentially contaminating the water.

Landfills can be defined in different ways, but by our count, the Presidio contained 21 Army landfills, including at least 16 that were one to five acres in size. They were located in both Area A, the coastal area managed by the National Park Service, and Area B, the inland area administered by the Presidio Trust.

The Army used several terms for these sites, including “fill site” and, in one case, “graded area” as well as “landfill.” It called the six landfills and debris sites on the coastal bluffs along Baker Beach on the western shore of the Presidio “disturbed areas.” Although these sites were eventually found to contain some of the same chemicals of concern as the sites called landfills, the alternate terms were retained during the remediation and are used here.

The location map below shows the sites and relative sizes of landfills, fill sites, disturbed areas and a graded area on the Presidio.



Map showing location of Presidio landfills; size of red circle represents relative size of landfill or fill area. Source: Schematic illustration adapted from map in Presidio Trust, Basewide Report of Compliance submitted to DTSC, May 2014, prepared by AMEC Environmental & Infrastructure, Inc.

The remediation of Presidio landfills was addressed under the CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) Cleanup Program for removing or encapsulating harmful substances regulated by the 1980 federal law of that name. The program was supervised by the state Department of Toxic Substances Control. The Army issued a draft Feasibility Study in 1996 and a final Feasibility Study in May 1997 proposing remedies for several dozen sites in a group known as the Main Installation, including most of the landfills.

As Chapter 4 of this report described, about 10 sites in the Crissy Field area were detached from the Main Installation in June 1997 and placed in a special fast-track cleanup unit to clear the way for the Crissy Field restoration planned by the Park Service and Golden Gate National Parks Conservancy. One of these sites was the 37-acre landfill known as Fill Site 7, which was placed over a lagoon and marsh to create land for the Panama-Pacific International Exposition of 1915. Later, the Army built a pioneering military airfield, named Crissy Field, over the fill in 1921. During the cleanup in 1998, the Army excavated and removed 16,717 tons of soil contaminated with petroleum, lead and other metals from Fill Site 7, making it the first Presidio landfill to be treated with clean closure. It is now the site of the restored Crissy Field Marsh, restored sand dunes and a grassy meadow.

Most of the remaining landfills were retained in the Main Installation unit. The Army's 1997 Feasibility Study proposed leaving them in place, in keeping with the normal military practice at former bases. For most of the Presidio landfills, the study recommended either no action at all or land use restrictions with long-term monitoring of soil and groundwater for up to 30 years. It proposed a soil cover for one of the largest landfills, known as Landfill E, and limited excavation of "hot spot" contamination from one other, Landfill 2. The study did not evaluate clean closure as a remedy alternative, and the Army cited the potential cost of clean closure as the reason for precluding that option.

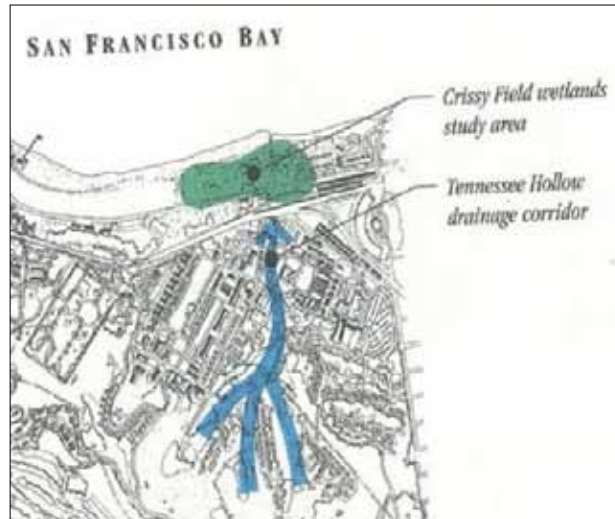
B. Landfill Closure Resolution and Principles

RAB community members, other civic and environmental groups and the National Park Service were concerned that the Army plan to leave landfills in place would restrict public access to land in the new park, perpetuate contamination of groundwater and streams, and possibly cost more in the long run. A related concern was that it was not clear who would pay for any long-term monitoring and maintenance needed and that the task could be a financial drain on the Park Service.

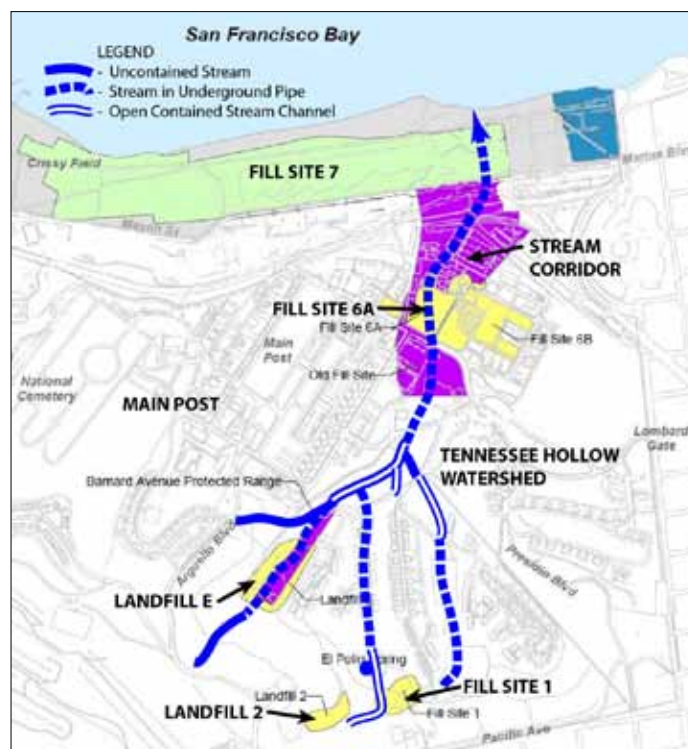
In preparation for commenting on the 1997 Feasibility Study, RAB members began to investigate and advocate the option of clean closure. Part of the foundation for this approach was our study of the National Park Service's 1994 plan for the Presidio, known as the General Management Plan Amendment or GMPA. (It was entitled an amendment because it revised the agency's 1980 plan for the larger Golden Gate National Recreation Area). This plan called for restoration of stream and riparian corridors in the Tennessee Hollow Watershed, a 270-acre area on the east side of the Presidio.

In this watershed, three tributary streams originating in the hills near the southern border of the Presidio flow downhill and meet in a larger stream leading to the now-restored Crissy Field Marsh on the northern shore of the Presidio. Three landfills – Fill Site 1, Landfill 2 and Landfill E – were located on or near the hillside tributaries. To the north, a fourth landfill, Fill Site 6a, channeled the main stream into a culvert and buried it in soil and demolition debris shortly before it reached the marsh lagoon. All four sites lay within a freshwater ecological protection zone designated by the Regional Water Quality Control Board. The landfills appeared to RAB members to impede the potential restoration of the watershed and create the possibility of ongoing contamination of the main fresh water source for the new marsh.

RAB community members came to believe that leaving these and other landfills in place was not appropriate for a national park. The land use controls would limit reuse options and restrict public access to the land. The containment of waste in place carried risks of ongoing ground-water and stream pollution as well as possible future exposure to contamination by people and wildlife if the controls proved to be inadequate. Clean closure appeared to be the most protective of human health and the environment.



Schematic map of Tennessee Hollow Watershed and tributaries in 1994. Source: National Park Service, GGNRA General Management Plan Amendment, 1994



Map showing landfills and status of streams in Tennessee Hollow Watershed in late 1990s. Source: Adapted from Presidio Trust maps

We also questioned the assumption that clean closure would be more expensive. We believed the true cost of clean closure in comparison with long-term monitoring and maintenance had not been fully studied.

In the spring of 1997, RAB community members incorporated these ideas in a landfill closure resolution, entitled “Excavation, Recycling and Off-Site Consolidation of Presidio Landfills, Fill Sites and Disturbed Areas,” together with an accompanying set of landfill closure principles. The resolution and principles, which were approved by RAB community members at the May 13, 1997 board meeting, are reproduced on the following pages.

Among other points, the resolution and principles emphasized that clean closure would meet the criterion of community acceptance, which is one of nine standards set forth by the federal CERCLA law for evaluation of cleanup remedies. The principles also noted that under U.S. Environmental Protection Agency guidance for treatment of military landfills under the CERCLA law, landfills containing less than 100,000 cubic yards of material were candidates for excavation and off-site disposal.

RAB community members drew on these concepts in our September 1997 comments on the Army’s Feasibility Study and in our outreach to other civic groups also commenting on the study. We also used them in our later review of the more protective cleanup plans developed by the Presidio Trust after it took over the remediation in 1999. We believe the advocacy of clean closure by the RAB and other members of the public, as well as the National Park Service, was an influential factor in the Trust’s selection of that remedy for 11 landfills (in addition to the landfill previously removed by the Army at Crissy Field). In particular, the notion of community acceptance under the CERCLA law may have played an important role and provided one of the bases for the state Department of Toxic Substances Control to approve clean closure as a remedy.

The Landfill Closure Resolution and Principles are presented on the next page. They were approved by a 17-2 vote of community members at the RAB meeting of May 13, 1997, after discussion and review at the April and May board meetings and two committee meetings.



Clean closure of Fill Site 1 and Landfill 2 in Tennessee Hollow Watershed in 2010

**Presidio of San Francisco
Restoration Advisory Board**

RESOLUTION

**Excavation, Recycling and Off-Site Consolidation
of Presidio Landfills, Fill Sites and Disturbed Areas
May 1997**

Whereas the Presidio's future reuse and status as a National Park must be carefully protected so that it meets its fiscal goals of self-sufficiency;

Whereas the containment of waste at the Presidio of San Francisco may be inconsistent with the vision, goals and reuse scenarios of the Park;

Whereas institutional controls at the landfills, fill sites and disturbed areas would limit reuse options;

Whereas the location of Presidio landfills, fill sites and disturbed areas in ravines, valleys and low-lying areas where fresh water is known to flow yields ongoing pollution to the environment;

Whereas the landfills, fill sites and disturbed areas at the Presidio contain a variety of recyclable materials and if those materials were recycled, when appropriate and feasible, the costs of excavation and off-site disposal would be substantially reduced;

Whereas excavation and off-site disposal of landfill, fill site and disturbed area materials has been routinely dismissed as prohibitively expensive without sufficient written estimates, while expenditure estimates of containing wastes on site have not fully considered all the costs of long-term monitoring and maintenance; and

Whereas remedies have been selected for certain Presidio landfill sites without community acceptance; now, therefore

Be it resolved that the Presidio of San Francisco Restoration Advisory Board fully endorses the April 1997 Presidio Landfill Closure Principles; and

Be it further resolved that with few exceptions, and until proven otherwise, the Presidio landfills, fill sites and disturbed areas should be fully excavated, fill materials recycled where appropriate, and remaining materials and hazardous waste consolidated at modern, appropriately designed and monitored off-site disposal facilities.

**Approved by a 17-2 vote of RAB community members at RAB meeting
of May 13, 1997**

Landfill Closure Principles

1. Consolidate—Reduce Widely Separated Extent of Wastes

Debris fill, garbage and hazardous waste is spread over seventeen separate Presidio sites where people, plants and animals can be exposed, now or in the future. Consolidation of at least some Presidio landfills on-site or off-site would considerably reduce or, more appropriately, eliminate the widely separated extent of wastes at the Presidio.

2. Relocate Small Landfills

Where landfill areas and volumes are small they can be readily moved. The EPA's April 1996 Guidance, "Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills," recommends that landfills not be moved if they are more than 100,000 cubic yards in volume. Most

of the Presidio landfills are less than 10,000 cubic yards – none are over 100,000 cubic yards (see attached Table 9.0-1 from the Army's Final Remedial Investigation Report, Presidio Main Installation, January 1997). Therefore, according to the guidance all Presidio landfills are candidates for excavation and off-site disposal.

3. Reuse of National Park Lands is Unrestricted

Reuse of the Presidio National Park lands is thoroughly described in the Park Service's General Management Plan Amendment, July 1994, and updated by such reports as the Final Draft Wetland and Riparian Corridor Restoration Feasibility Study, August 1995. These plans required considerable time and effort to develop and involved a great degree of community input. Nevertheless, as the final plans for a particular site emerge, the details may vary, sometimes significantly, from the initial concept. Flexibility for changing reuse scenarios ensures that the Park Service and the Presidio Trust may employ the best possible site reuse for the Park so that it may achieve its self-sufficiency needs. Therefore, it remains essential that institutional controls are not imposed on Presidio contamination sites, limiting the reuse of the property and diminishing its value for the millions of expected Park visitors.

In addition, a 1991 San Francisco Regional Water Quality Control Board Policy regarding foundation piles through closed landfills (see attached) illuminates hidden costs for construction at capped landfill sites, and suggests that there will likely be substantial compliance costs if Presidio decision-makers decide to build on landfills in the future. These future compliance costs may severely limit reuse at the Presidio landfills and should be considered.

4. Clear Waste from Groundwater Saturation Zones

As indicated in Table 9.0-1 from the Presidio Remedial Investigation (attached), a substantial number of the Presidio landfills were created by dumping debris, garbage and hazardous waste in ravines and low-lying areas where small creeks and seeps existed. These freshwater saturation zones are now the sites of potential ongoing contamination. By relocating wastes in an appropriately designed and monitored off-site disposal facility with modern leachate collection systems, Presidio surface water and percolating groundwater will remain free from future contamination. Wastes should, therefore, be removed from water saturation zones where toxic leaching in toxic amounts is more likely to occur.

5. Recycle Building and Construction Debris

Much of the material in Presidio fill sites is described as debris fill and rubble. These materials are now commonly recycled and need not be sent to a landfill. Recycling materials when appropriate and feasible would reduce the cost of off-site disposal.

6. Consider Cost of Remedy Only After Other Threshold Issues are Resolved

The community must assume that a containment presumptive remedy has been selected at Landfill E since monies have been spent designing that remedy. According to the EPA's April 1996 Guidance, "Application of the CERCLA Municipal Landfill Presumptive Remedy to Military Landfills," land reuse and community acceptance should be ascertained before a presumptive remedy is implemented. To implement a presumptive remedy, the Administrative Record must contain site-specific information documenting how the presumptive remedy satisfies, among other site-specific remedy selection criteria, community acceptance. Community acceptance is based on examining a site for expected future reuse and alternative remedies for cleanup. The Army should not claim a priori that the cost of excavation and off-site disposal is prohibitive and therefore, excavation is not to be considered—particularly when the community is not given the detailed cost information to evaluate. Once given the detailed cost information the community can assess whether costs for containing wastes in place include sufficient funding for monitoring and cap maintenance. Annual maintenance costs for containing and monitoring landfills could be considerable and would be a permanent additional burden to the Park, suggesting that a permanent removal action may be a more appropriate remedy. Therefore, remedy costs should be considered after all alternatives are reviewed for site reuse and community acceptance.

7. The Presidio has Special Status as a National Park

The Army has stated that it fully recognizes the importance of the historical and recreational resources at the Presidio and its unique status among Base Realignment and Closure (BRAC) sites. However, there is no indication in any reuse scenario described to date that containment of contamination sites on the Presidio furthers some significant future reuse purpose. The containment

of wastes at the Presidio of San Francisco is entirely inconsistent with the vision, goals and reuse scenarios of the Park. In consideration of the Park's future reuse needs, landfills, fill sites and disturbed areas should be excavated and disposed of off-site.

8. The Cleanup Remedy is Acceptable to the Community

According to the National Contingency Plan each alternative is assessed against nine evaluation criteria. The ninth criterion, one of the so-called modifying criteria, is that an alternative should be acceptable to the community. The final disposition of Presidio landfills should, therefore, be acceptable to the community representatives. While not the only body capable of giving input regarding the Presidio cleanup effort, the Restoration Advisory Board is the Army-sponsored community-input advisory group and should therefore be consulted. The Army has not conferred with community representatives from the Restoration Advisory Board regarding disposition of the Presidio landfills. Rather, it has pursued a course of implementing a presumptive remedy, particularly at Landfill E, without community acceptance. As with any site at the Presidio, landfill cleanup alternatives and presumptive remedies must pass the criterion of community acceptance.

9. Monitoring

If, after thorough discussion regarding the disposition of each landfill, regulators and community members agree that containing waste at the Presidio is appropriate in a certain situation, then that waste should be contained at a properly monitored site.

C. Landfill Cleanup Plans

The next step in the CERCLA process was a September 10, 1997 deadline for submitting public comment to the Army and state Department of Toxic Substances Control on the Army's Feasibility Study for the Main Installation sites. RAB community members submitted a 10-page letter that, among other points, urged a more protective cleanup of landfills and other sites, asked for more soil sampling at landfills, sought more accurate cost estimates, discussed the need for groundwater protection, and cited the criterion of community acceptance. The letter included the Landfill Closure Resolution and Principles as an attachment and was signed by 20 of the board's 23 then-active community members. Twelve members additionally submitted individual comments or contributed to letters written by civic organizations they represented on the board.

As described in Chapter 3 of this report, RAB members also made presentations to neighborhood and environmental groups preparing to comment on the Army's plan. In all, a total of 51 people, organizations and agencies submitted written comments on the study and another 16 individuals spoke at a public meeting held by the Army on Sept. 3, 1997.



RAB community member Doug Kern at Landfill 2 excavation in Tennessee Hollow Watershed in 2010

Nearly all the commenters, including the Presidio Trust, the National Park Service and the U.S. Environmental Protection Agency, urged that a more thorough cleanup was needed for a national park. In the book “New Guardians for the Golden Gate,” Amy Meyer, a co-founder of People for a Golden Gate National Recreation Area and a founding board member of the Presidio Trust, wrote that the number of public comments on the study was “remarkable for such an arcane subject.”

Cleanup planning at the Presidio took a dramatic and, to many community and environmental groups, welcome turn after the Presidio Trust took over responsibility for the environmental remediation from the Army in 1999. As was described in Chapter 1 of this report, the Trust was created by Congress in 1996 to manage the inland area of the park, known as Area B, while the National Park Service continued to administer the coastal sections in Area A. In 1999, the Trust took charge of the cleanup in both areas by means of two innovative agreements with the U.S. Defense and Interior Departments.

In preparation for negotiations with the Army, the Trust had prepared a list of alternate, more protective remedies for the Main Installation sites in 1998. A Trust consultant had met with RAB community members to solicit our views on the recommended alternatives. After taking over the cleanup in 1999, the Trust began revising the Army’s Feasibility Study for the sites. During the next three years, the Trust intensively discussed the plans in the revised study in a collaborative fashion with RAB community and agency members at RAB board meetings and the less formal Planning Committee meetings held each month.

The Revised Feasibility Study was issued in 2003. It endorsed the concept of clean closure of landfills, although with one qualification. It stated the Trust had a preference for permanent remedies such as clean closure “when practicable, cost-effective and consistent with future land use.” Over the next 10 years, the Trust carried out the clean closure of 11 more landfills (in addition to the previously removed Fill Site 7 at Crissy Field) and capped several more with engineered covers.

To aid in our review of the landfills and other sites in the revised study, RAB community members created four internal working groups in the fall of 1999. Each group reviewed reports and plans for the landfills and other sites in a particular quadrant of the Presidio. The four quadrants were the Tennessee Hollow Watershed in the east; the Lobos Creek Watershed and former Public Health Service Hospital district in the south; the Fort Scott Watershed in the northwest; and the coastal bluffs along Baker Beach on the west.

The groups, which were active through 2003, reported their conclusions and recommendations for comments to the full RAB. Community members who served on the Tennessee Hollow Watershed working group included Sam Berman, Matt Fottler, John Luikart, Scott Miller, Jan Monaghan, Peter O’Hara, Mary Trigiani, Joanne Chow Winship and Tracy Wright. The Lobos Creek Watershed working group was made up of Saul Bloom, Ed Callanan, Julie Cheever and Julian Hultgren. Members of the Fort Scott Watershed working group included Sam Berman, Matt Fottler, Peter O’Hara, Sara Segal and Joanne Chow Winship. George Dies and Tracy Wright

served on the Coastal Bluffs working group, and Doug Kern and Mark Youngkin attended many of the meetings of all the groups. Brian Ullensvang, the National Park Service's representative on the RAB, attended some meetings and assisted community members in reviewing technical information.

The landfill treatments were carried out through a series of Remedial Action Plans, which RAB community members also discussed and commented on during the next several years. We were aided by presentations by Terri Thomas of the Trust's natural resources staff on how the former landfill sites could best be prepared for future restoration into natural areas, streams and groves. RAB representatives also participated at various times in working groups to analyze data and remedy designs.

The landfill closures allowed the restoration of 12 natural areas with native habitat and new opportunities for hiking and recreation in both the coastal and inland sections of the Presidio. They also provided the foundation for an innovative partnership in which thousands of volunteer stewards worked with the National Park Service, Presidio Trust, and nonprofit Golden Gate National Parks Conservancy to restore native plants to the areas. In the remainder of this chapter, we describe some of these landfills and the legacy of their closure.

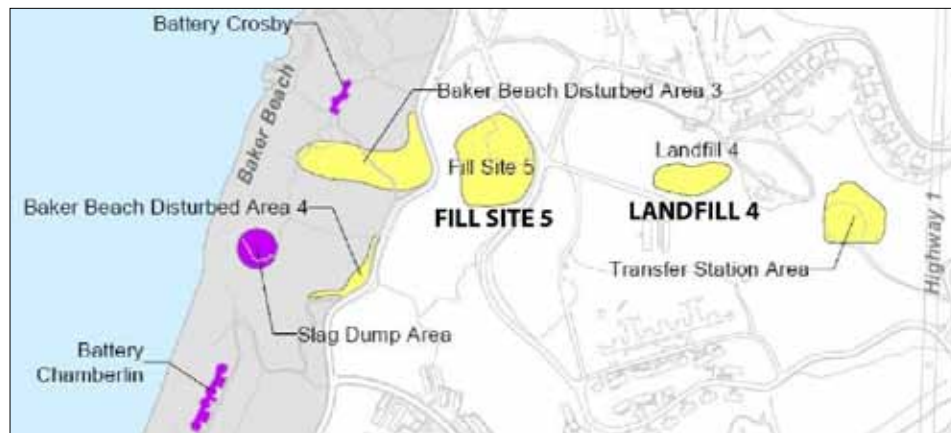


View in 2014 from Inspiration Point of the upper Tennessee Hollow Watershed, where Fill Site 1 and Landfill 2 were remediated by clean closure and restored to native habitat

D. An Experiment in Clean Closure: Landfill 4 and Fill Site 5

In 2001, the California DTSC approved a proposal by the Presidio Trust for a Pilot and Treatability Study to excavate two of the smaller landfills in the southwestern hills of the Presidio, Landfill 4 and Fill Site 5, as an experiment in clean closure. Since landfill clean closure had rarely been performed on military bases, the potential cost and scheduling of the procedure were uncertain and difficult to quantify. The purpose of the study was to evaluate the implementation of clean closure in the new national park.

The five-acre Landfill 4 was located in a wooded area near the Rob Hill camp used by school children and other groups. Fill Site 5, in a 2.7-acre site now called Sunset Scrub, was situated to the west, on top of a ravine on a hillside south of the



Map showing location of Landfill 4 and Fill Site 5. Source: Presidio Trust, Basewide Report of Compliance submitted to DTSC, May 2014, prepared by AMEC Environmental & Infrastructure, Inc. (Note: in this map and similar maps, the colors of contamination sites are keyed to the various Operable Units in which the remediation was carried out.)

Presidio's West Coast World War II Memorial overlooking the Pacific Ocean. Both were used between 1946 and 1981 for the disposal of building debris, municipal-type waste, fill material and, in the case of Landfill 4, possibly chemical wastes. According to the Army's 1997 study, Fill Site 5 was used for disposal during inclement weather when Landfill 4 was not accessible. Waste was dumped down the ravine at Fill Site 5 and periodically covered with soil.

Landfill 4, which is further described in the RAB fact sheet on page 54, was 14 feet deep in some areas and was estimated to contain up to 6,500 cubic yards of soil mixed with building debris, municipal waste and possibly chemical waste from various Presidio facilities. Soil sampling had shown metals, petroleum hydrocarbons and chlorinated solvents. Fill Site 5 was estimated to contain up to 35,000 cubic yards of fill contaminated with metals and pesticides including lead and chlordane.

In early 1997, community member Doug Kern reported at a RAB meeting that there was a cluster of 11 dead eucalyptus trees at the center of Landfill 4, and queried whether the cause could be contamination. An Army representative suggested that



View in 2012 of new forest replanted following clean closure of Landfill 4 in 2002

bulldozers could have created the damage and the cause was never definitively identified. The Army had proposed leaving the two landfills in place with restrictions on future land use for both and a restriction on the use of groundwater at Landfill 4 as a water supply.

When the two landfills were excavated in the summer of 2002, Fill Site 5 proved to be slightly smaller than expected – 33,000 cubic yards rather than 35,000 – but the soil at both sites was

more toxic than anticipated. Because historical soil sampling for total lead at the landfills had revealed concentrations below regulatory screening levels, soil testing for soluble lead had not been performed. When the landfill waste was tested to determine the appropriate type of off-site disposal, however, the results

revealed significant soluble lead contamination. Some of the material contained lead at levels categorized as Class I hazardous waste, requiring disposal in a more expensive specialized facility. As a result, the off-site disposal cost was higher than originally anticipated in the preliminary cost estimates. Even with the elevated disposal costs, the landfill excavations progressed smoothly and provided valuable cost data clearly showing that landfill clean closure was a practical alternative at many landfill sites.

At Fill Site 5, the excavation exposed several types of native soils, each conducive to a slightly different coastal habitat. The Trust's natural resource staff and volunteer stewards planted 30,000 native plants, representing more than 100 species, in the restored area. The area was renamed Sunset Scrub because of the ocean sunsets that could be viewed to the west.



Excavation at Fill Site 5 in 2002, in area now called Sunset Scrub. Photo: Presidio Trust



Sunset view of Sunset Scrub habitat restoration area following removal of landfill

E. Thompson Reach (Fill Site 6a)

Fill Site 6a formerly covered an area now called Thompson Reach, south of the now-restored Crissy Field Marsh and tidal lagoon and north of the Army gym that now serves as the Presidio YMCA. As is shown on the map on page 83, it buried part of the freshwater stream that drained northward from the upper Tennessee Hollow Watershed to the coastal marsh. The site was originally treated as part of a larger landfill known as Fill Site 6, which lay under the former Letterman Army Hospital. In preliminary installation assessments in the 1980s, the Army had considered Fill Site 6 to consist of innocuous demolition debris. It did not include the site in initial drafts of its Remedial Investigation and Feasibility Study documents.

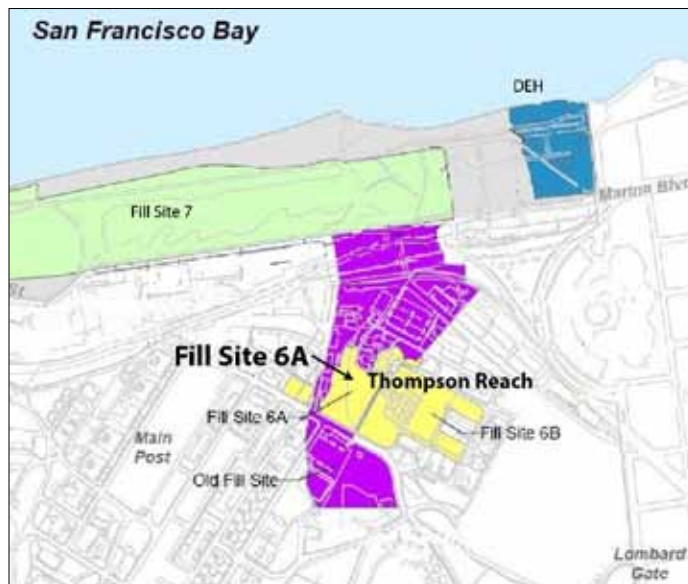
While doing research on environmental features of the Presidio in 1996, however, RAB community member Doug Kern noticed that the topography of the Fill Site 6 area did not appear natural and that historical maps showed that the Tennessee Hollow stream leading to the marsh was diverted underground into a six-foot culvert pipe. In a field inspection, he noticed a large mound of debris covering the former stream location.

It turned out that as the Letterman Army Hospital expanded in the 20th century, the creek was diverted into an underground culvert and warehouses and a railroad spur were constructed over it.

When those buildings were demolished in the 1970s, the debris was deposited above the buried creek. The site was part of a freshwater ecological protection zone designated by the California Regional Water Quality Control Board.

After Doug Kern brought the site to the attention of the full RAB, including the Army and state regulators, Fill Site 6 was recognized as a landfill and evaluated in the Army's 1997 Feasibility Study. The study recommended leaving the landfill in place with institutional controls to prevent any future residential use and restrictions on the use of groundwater as a drinking water supply.

After taking over the cleanup responsibility in 1999, the Presidio Trust reconsidered the plans for Fill Site 6 and other Main Installation sites and issued a revised Feasibility Study in 2003. For evaluation purposes, the Trust divided the landfill into



Map showing location of Fill Site 6a landfill. Source: Presidio Trust, Basewide Report of Compliance submitted to DTSC, May 2014, prepared by AMEC Environmental & Infrastructure, Inc.

Fill Sites 6a and 6b. During the reconsideration process, RAB community members continued to advocate removal of Fill Site 6a to allow restoration of the riparian corridor and compliance with the freshwater ecological protection zone. Additional sampling conducted by the Trust showed concentrations of mercury and PCB at the site that exceeded regulatory standards for protection of human health and wildlife. In the revised plan, the Trust determined that clean closure was the preferred alternative and proposed to excavate the landfill and restore the watershed corridor at Fill Site 6a.



Clean closure of Fill Site 6a and "daylighting" of watershed stream in 2005, in area now called Thompson Reach.

Photo: Presidio Trust

In 2005, the Trust removed 77,000 tons of landfill debris and waste from the site and a 400-foot portion of the creek was brought above ground, or daylighted. As part of the Trust's ongoing project to restore the Tennessee Hollow Watershed, volunteers and Trust staff planted more than 35,000 seedlings to create wildlife habitat. As of 2014, visitors could see butterflies, nesting birds and more than 100 species of native plants in the restored stream reach, as well as stickleback fish in the daylighted portion of the creek.

The site was renamed Thompson Reach in honor of Dora Thompson, the chief nurse at the Army General Hospital (later called Letterman Army Hospital) in the early 20th century. A small redwood grove overlooking the northern end of the reach was dedicated in honor of Edgar Wayburn, the co-founder of People for a Golden Gate National Recreation Area, and Peggy Wayburn in 2006. The reach is now one of several sections of the watershed that has been restored or designated for restoration, and is immediately south of the planned Quartermaster Reach stream restoration that will connect directly with the Crissy Field Marsh.



Present-day view of Thompson Reach following removal of Army landfill

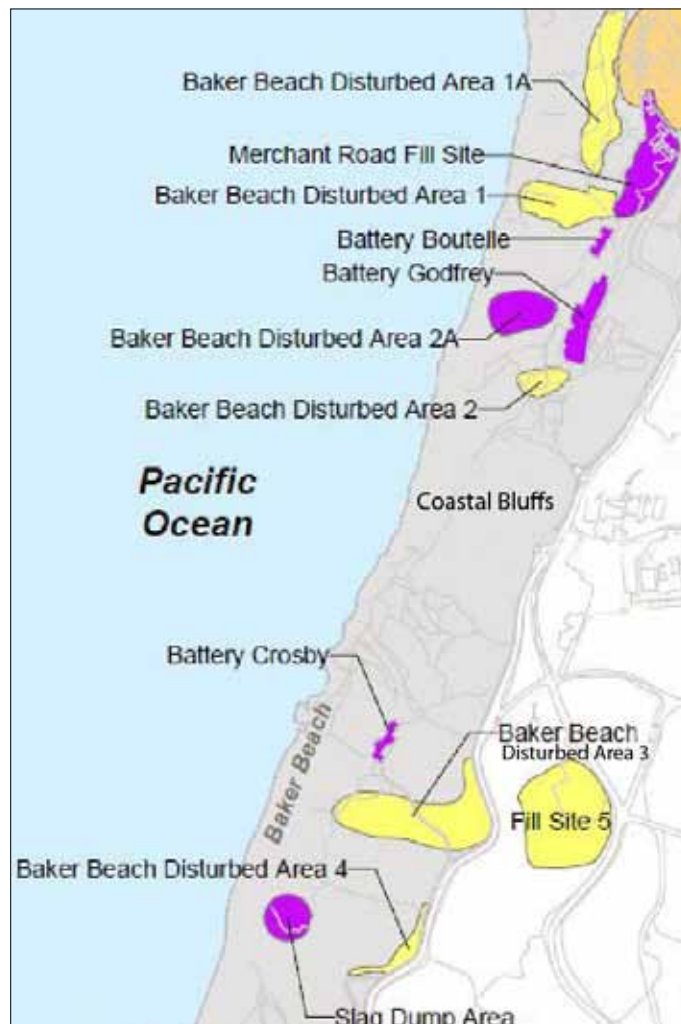
F. The Landfills of the Coastal Bluffs

The landfills on the coastal bluffs along Baker Beach were created between the 1940s and 1970s when the Army dumped building debris and other materials over the steep cliffs for purposes of erosion control and disposal of waste. Removing these landfills was a priority for the National Park Service after the Presidio Trust took over the environmental remediation. The 1999 agreement between the Trust and the Interior Department had provided that cleanup of contamination in the Park Service's Area A would take precedence in the remediation process.

In addition, the Park Service was eager to move forward with plans to restore native habit and create a new, safe and environmentally sensitive scenic trail system along the bluffs, as part of the basewide trail project being undertaken by the Park Service, Trust and nonprofit Golden Gate National Parks Conservancy. Before the new trails were developed, the cliffs were crisscrossed with a network of small, unofficial trails that were dangerous because of the steep slopes. The landfills also posed a risk that hikers and volunteers who would be replanting the areas could be exposed to contamination.

The Army characterized the coastal landfills as "disturbed areas." They were initially treated as five landfills, but the number was eventually expanded to include a previously unknown site, Baker Beach 2a, for a total of six: Baker Beach 1, 1a, 2, 2a, 3 and 4.

Although the landfills were found to contain incinerator ash, roofing materials, pesticides and metals in addition to building debris, the Army proposed in 1997 to leave them in place, with no remedial action. Because of the steep slopes underlying some of the landfills, it had considered the excavation of contamination



Map showing coastal bluff landfills and cleanup sites.
Source: Presidio Trust, Basewide Report of Compliance submitted to DTSC, May 2014, prepared by AMEC Environmental & Infrastructure, Inc.

technically impossible. The Trust removed all six landfills by clean closure actions, in three projects carried out between 2004 and 2011. The landfills on the two steepest slopes, Baker Beach 1 and 2a, were excavated in 2007 with innovative technology.



RAB agency and community members inspecting coastal bluff landfill sites

Baker Beach 3 and 4: Baker Beach Disturbed Areas 3 and 4, located on the moderately sloping southern end of the bluffs, were excavated in 2004 and 2005. They were the first to be addressed because they were on less steep terrain than the four more northern landfills and were viewed as more easily accessed.

Baker Beach 3 was initially not listed in the Army's Remedial Investigation and Feasibility Study drafts until RAB community members brought it to the attention of the Army and regulators. While doing field research in 1996, Doug Kern and Mark Youngkin observed concrete debris and other items protruding from the ground in an overgrown and wooded area filling a steep ravine above the beach. The steep slope and dense vegetation had apparently precluded past field inspection of this area. They also noticed that the large demolition debris pile covered a freshwater seep that still flowed from the landfill towards the beach. Robert Boggs, a project manager with the California Department of Toxic Substances Control, later accompanied the community members into the thicket to observe the obvious evidence of landfill debris and surface water flow. The site was subsequently included in the Army studies.

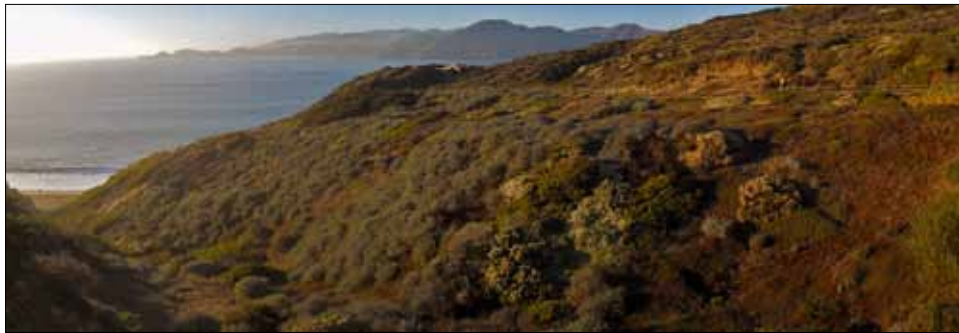
The Baker Beach 3 excavation encountered a larger volume of fill than expected because the underlying natural ravine was deeper than had been estimated in technical studies. Between July 2004 and January 2005, the Trust removed approximately 57,595 tons of fill soil, tree stumps, concrete, demolition debris, and municipal waste from the site. A small amount of debris was removed from the Baker Beach Disturbed Area 4 site along the west side of Lincoln Boulevard.



Construction of trail on historic roadbed at Baker Beach 3 site. Photo: Presidio Trust

A historic chert roadbed was uncovered beneath the Baker Beach 3 landfill and restored for future trail access to nearby Battery Crosby, a coastal fortification built in 1900. The road provided the entrance to a new Batteries to Bluffs Trail, a side trail off the popular California Coastal Trail leading to the Golden Gate Bridge. The new pathway featured sweeping ocean views and a spur trail leading to Marshall's Beach at the foot of the cliffs.

Park Service staff and volunteers replanted the two areas with native dune vegetation. At the Baker Beach 3 site, a wetland feature and small coastal stream developed in the bottom of the natural ravine that was re-exposed after the landfill closure. The site was renamed Coyote Gulch because a coyote was sometimes spotted there.



Present-day conditions following clean closure of Baker Beach 3 landfill in 2004 and subsequent habitat restoration in area now called Coyote Gulch

Baker Beach 1 and 2a: Two of the largest landfills, Baker Beach 1 and 2a, were removed in 2007 and revegetated with native plants in early 2008. These two sites were located on a steep section of the coastal bluffs near the Golden Gate Bridge. The excavation project was accomplished with specialized equipment and proved to be the biggest challenge facing the Trust's landfill remediation program. To carry it out, the Trust engaged an experienced contractor willing to tackle the steep and potentially unstable bluffs with long-arm and spider excavators. Because attaching equipment to bedrock was not allowed under Park Service guidelines, an innovative 250-foot-long conveyor belt system was developed to move the excavated waste up the steep slope for off-site disposal. A total of 73,000 tons of waste was excavated from the Baker Beach 1 and 2a landfills. In the course of the operation, workers unearthed several rounds of unexploded Civil War-era ordnance.

The previous investigations of Baker Beach 1 and 2a, although more thorough than typical landfill investigations, had not discovered the full extent and depth of the landfill debris. In addition, unexpected incinerator ash with lead contamination was encountered during the excavations, which required more expensive off-site disposal. The size and costs of the excavations increased significantly from original estimates. Despite the cost overruns, the clean closure action was successful, leaving this environmentally sensitive area of the park free of requirements for long-term operation and maintenance activities and free of risks to hikers or resources specialists and volunteers replanting the area.



Excavation of Baker Beach 1 landfill on coastal bluff through use of long-reach excavators and conveyor system in 2007

Baker Beach 1a and 2: The Trust removed the last coastal bluff landfill, Baker Beach 2, and the Baker Beach 1a debris site during the summer of 2013. Baker Beach 2 contained a layer, two to 17 feet deep, of fill soils, construction debris, and refuse found to be contaminated with lead and other metals, benzo(a)pyrene, DDT and chlordane. The remediation team excavated a total of 14,273 tons of waste. In this area, the National Park Service planned to restore earthworks from historic Battery Godfrey, construct an overlook, restore native habitat, and build an improved section of the California Coastal Trail. The photograph below shows a recent view of the site with an interim erosion protection cover and revegetation under way.

The Baker Beach 1a site contained old asphalt roofing material from Batteries Cranston and Marcus Miller on the west side of the entrance to the Golden Gate Bridge. Asphalt and tar were found in the sand adjacent to and below the frontal slopes of the batteries. During the remediation, the Trust excavated and removed a total of 7,992 tons of contaminated sand. Twenty-five previously unknown historic cultural features were discovered, including a parapet wall, gun mount, and magazines. The photo on the next page shows the site following remediation.



Present-day view of restored Baker Beach 2 site with revegetation under way, seen from the north with Baker Beach in background



California Coastal Trail along restored coastal bluffs following removal of frontal slope contamination from Baker Beach 1a site

G. Containment Caps: Landfill E, Landfill 8 and Landfill 10

Three landfills at the Presidio – Landfill E, Landfill 8 and Landfill 10 – were particularly difficult in remedy design and resolving plans for them took many years. Landfill E, in the Tennessee Hollow Watershed, and Landfill 10, southwest of the former Public Health Service Hospital, were the two largest landfills on the base. Both were eventually believed to contain more than 100,000 cubic yards of soil fill, debris and waste, although the actual extent was not known because they were not fully excavated.

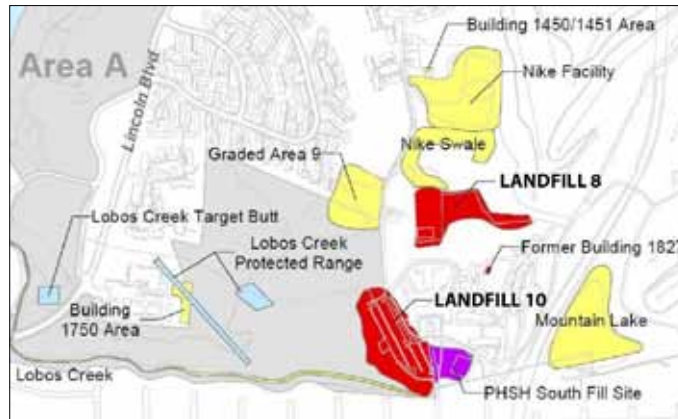
Landfill E, which was 37 feet deep at its greatest depth, was placed over the western tributary of the stream leading to the Crissy Field Marsh. Pop Hicks Field, an Army-era ball field, was built over part of it and the Trust planned to restore the site to the same use. Landfill 10 lay partly beneath a parking lot for the hospital and on its western side sloped steeply down to the now-restored Lobos Creek Valley area. Landfill 8, to the north of the hospital, posed a particular challenge in that it had been placed over a cemetery for merchant seamen who were treated at an earlier hospital known as the U.S. Marine Hospital. (The hospital name referred to merchant mariners and not to members of the military.)



Present-day view of restored coastal sand dunes overlying containment cap covering Army-era Landfill 8 and merchant seaman cemetery

Landfills 8 and 10 had been previously evaluated by the Army separately from the Main Installation in an earlier process. In a Record of Decision in 1995, the Army had specified that the landfills would be left in place, with ongoing ground-water monitoring for Landfill 8 and soil and groundwater sampling for Landfill 10. After taking over the remediation program in 1999, the Trust reopened that decision as part of a five-year review, for the purpose of considering more protective remedies.

In 2001, the Trust's remediation manager at the time, Craig Cooper, formed a working group made of representatives of the Trust, regulatory agencies, RAB and other stakeholders to review new investigation results, analyze data, review stability analysis and groundwater conditions, and formulate alternative remedial plans for Landfills 8, 10 and E. The group made substantial progress in evaluating the large volume of data and formulated remedial alternatives that ranged from clean closure to various configurations of permeable covers for the three landfills.



Map showing location of Landfills 8 and 10 in upper Lobos Creek Valley. Source: Presidio Trust, Basewide Report of Compliance submitted to DTSC, May 2014, prepared by AMEC Environmental & Infrastructure, Inc.

Although RAB members advocated clean closure for the sites, the Trust eventually selected permeable soil covers as being more economic and consistent with its land use plans for the areas. These plans include a renovated ball field at Landfill E. A parking lot was constructed over Landfill 10 for the new residential apartments in the former Public Health Service Hospital building. At Landfill 8, a permeable sand cover was planted with native dune vegetation, and a boardwalk along the edge of the site included a viewing platform with a plaque commemorating the underlying historic cemetery.



Construction of permeable soil cover over Landfill 10 in 2009

The cover remedies approved by the state Department of Toxic Substances Control for the three sites include requirements for Land Use Controls. The restrictions prohibit the use of the land at Landfills E, 8 and 10 for housing, schools or day care centers unless further cleanup is carried out. The sites must also remain covered by soil or concrete barriers and be subject to protective measures if soil is excavated.

The process of vetting RAB concerns over the landfill remediation proposals resulted in the Trust building durable containment systems with more seismic and engineering stability than the limited actions planned by the Army. Community members are confident the containment remedies will serve the public and park for many years.



Present-day view of restored Lobos Creek Valley with revegetated Landfill 10 soil cover and former Public Health Service Hospital in background

H. Tennessee Hollow Watershed (Fill Site 1 and Landfill 2)

One of the last large-scale landfill closure projects undertaken by the Presidio Trust was the removal of Fill Site 1 and Landfill 2 in the upper Tennessee Hollow Watershed in 2010. These two sites were the southernmost landfills in the watershed and those at the highest elevation. They had been placed over or near the central tributary that farther north met two other tributaries to form the stream leading to the Crissy Field Marsh.

Together with three other contamination cleanup projects discussed earlier in Section E and Chapter 4, the clean closure of these two landfills made possible the restoration of important segments of the stream, tributaries and watershed. The other projects were the removal of Fill Site 7 at Crissy Field to create the restored marsh in 1999; the cleanup of petroleum contamination at the former gas station sites now known as Quartermaster Reach in 2012; and the clean closure of Fill Site 6a at Thompson Reach in 2005.

The map on the next page shows the landfills in the Tennessee Hollow Watershed and the sites of restoration projects planned or completed by the Presidio Trust.

Fill Site 1, which contained municipal waste from which metals had leached into groundwater, was immediately adjacent to a residential housing area and the Julius Kahn Playground operated by the city of San Francisco on the southeastern border

of the Presidio. RAB community members had expressed concerns at RAB meetings beginning in 1997 that children from the playground were commonly observed playing on the fill surface.

Landfill 2, to the southwest, was placed over a steep ravine containing the central tributary of the Tennessee Hollow stream and was up to 20 feet deep. It was used as a dump site from the 1940s to the 1970s and was found to contain municipal waste, medical waste and debris. In the 1990s, it was densely covered with forest, undergrowth and poison oak. As at several other sites mentioned in this report, independent research by RAB members influenced the investigation of the site.

During field research in early 1996, community member Mark Youngkin observed a protruding 55-gallon ruptured drum, surface water seeps indicating a potential wetland at the toe of the landfill, and orange-colored leachate that appeared to be seeping from the landfill into the wetland. These features had not been identified in reports by Army contractors. Other RAB community members

also visited the area. In March 1996, Mark Youngkin submitted written comments alerting the Army and regulators that the reports had not noted these items and that the features indicated that the extent of landfill debris might be greater than stated. RAB members' document review also revealed that a large area of the landfill had no sampling and there were no down-gradient groundwater monitoring wells. The Army did not conduct a further investigation. Its 1997 Main installation Feasibility Study proposed limited excavation of "hot spots" of contamination and restrictions on groundwater and land use at Landfill 2 and Fill Site 1.



Map showing location of Tennessee Hollow Watershed landfills and petroleum sites. Source: Schematic illustration adapted from map in Presidio Trust, Tennessee Hollow Upper Watershed Revitalization Project Environmental Assessment, August 2007

After taking over the cleanup program from the Army, the Trust revisited plans for the two sites. Its Revised Feasibility Study of 2003 proposed the clean closure – or removal of contamination above regulatory levels – of both landfills. In 2009, the Trust carried out extensive investigation and sampling of the sites for the preparation of a Remedial Action Plan for the sites. Contaminants of concern found in the Army and Trust investigations included lead, mercury, zinc, selenium, arsenic and DDT.



Damaged drum observed at Landfill 2 in 1996

In February 2010, RAB members were invited by the DTSC to participate in a roundtable discussion at the Presidio of the draft Remedial Action Plan for the landfills. At the meeting, DTSC representatives announced that Jim Polisini, the agency's senior toxicologist and risk assessor, would evaluate a proposal by the Trust to relax the selenium cleanup level from 0.5 ppm (the background level of the chemical) to 2 ppm, on the basis of new toxicology studies that had become available since 2006, when the original document setting cleanup levels was approved. At elevated levels, selenium can be detrimental to the growth and reproduction of birds and other wildlife. The purpose of the evaluation was to determine whether the proposed change would be ecologically protective.

In RAB discussions, community members John Budroe and Doug Kern raised concerns that selenium could be widespread as a result of the disposal of incinerator ash in Landfill 2 and that the new cleanup level could leave contamination that could affect the future ecological restoration. The cleanup levels adopted in 2006 resulted from several years of study and negotiation among the various stakeholders. A number of other community members agreed with the concerns and supported the effort to protect the existing cleanup levels from unnecessary changes. During the public comment period on the plan, community members submitted comments requesting



Clean closure excavation activities in progress at Landfill 2 in 2010

that the state agency continue using the existing conservative cleanup standard for selenium.

In response to the concerns, Jim Polisini attended the RAB meetings of April 13 and June 8, 2010 and explained the scientific rationale behind his decision to approve the change. The modification in the selenium cleanup level was finalized when DTSC approved the Remedial Action Plan on June 25, 2010. Although some disagreed with the change, RAB community members believed they had an opportunity to raise and discuss their concerns.

During the subsequent clean closure of the landfills in 2010 and 2011, the Trust excavated a total of 87,191 tons of landfill waste containing construction debris, municipal waste, and incinerator ash from a four-acre area. Confirmation sampling at the margins of the excavated area showed selenium levels to be primarily at or below the original 0.5 ppm standard, thus suggesting that the change in the cleanup level did not significantly affect the scope or cost of this particular project.

In 2012, the Trust's natural resources staff planted several hundred cypresses and pines along with a mix of woodland trees, shrubs, and native plants at the sites. A new section of the Mountain Lake Trail was also constructed to allow visitors to enjoy the restored area.



View of upper Tennessee Hollow Watershed in 2014, following removal of Fill Site 1 and Landfill 2 and subsequent restoration of streambed and native vegetation

I. A Lasting Legacy

The clean closure of 12 landfills resulted in the permanent restoration of a dozen natural areas with no need for future contamination monitoring or land use controls. The RAB's advocacy contributed to this outcome, in our view. The remediation in turn cleared the way for the National Park Service, the Presidio Trust and the Golden Gate National Parks Conservancy to obtain funding, design the restored sites and coordinate the planting of seedlings grown in Presidio nurseries. These areas now enable wildlife and the Presidio's original native plants to flourish and park visitors to enjoy the trails, landscapes and views safely.

Another vital and lasting effect of the landfill cleanups has been the contribution of thousands of volunteer park stewards who tend the restored sites each year. This initiative began with the Conservancy's "Help Grow Crissy Field" project, in which

more than 3,000 volunteers from many walks of life and of every age participated in the planting of more than 165,000 native plants, shrubs and grasses in the restored dunes and marsh between 1998 and 2001. One volunteer later called the intense stewardship effort at Crissy Field “a labor of love and a bonding event for the entire community with the Presidio.”

The stewardship program, led by a partnership of the Conservancy, Park Service and Trust, has continued the restoration and maintenance of habitat, trails, landscapes and forests at other sites, including the other former landfill locations and the shore and North Arm of Mountain Lake. The Presidio is now home to one of the nation’s largest and most successful park volunteer programs. In its 2014 fiscal and performance report, the Trust noted that 5,218 volunteers (including docents as well as stewards) supported the park with 26,575 hours of service that year.

Under the guidance of Park Service and Presidio Trust scientists, volunteer stewards who share the goal of creating a new national park have helped to transform distressed landscapes into popular natural areas and ecological reserves. Volunteers have also become park supporters and donors; written academic papers on findings and techniques used on the Presidio for plant propagation; discovered historic artifacts; and rediscovered plant species long thought extirpated on the Presidio. Many are active in encouraging the next generation of park stewards to become engaged in preserving and restoring the landscapes of the Presidio.



Dedication planting at Thompson Reach, site of former Fill Site 6a. (Present-day views of restored reach shown in photos on pages 80 and 93). Photo: Presidio Trust



Coastal dunes at Crissy Field, three years after planting by park volunteers. Photo: National Park Service



THE PRESIDIO OF SAN FRANCISCO RESTORATION ADVISORY BOARD



FINAL REPORT

Twenty Years of Public Participation 1994-2014
in the Environmental Cleanup of Our New National Park

Chapter 6. Case Studies: Nike Missile Site and Mustard Agent Site

In this chapter, we describe two contamination sites that are quite different from most of the remediation sites at the Presidio. Both happen to concern military weaponry, and both implicate the importance of adequate historical research during a remedial investigation. These two locations are the Nike Missile Site, where a battery for firing long-range non-nuclear missiles was maintained between 1955 and 1963, and the Inspiration Point area, where volunteer park stewards in 2002 discovered discarded mustard agent (also known as mustard gas) vials that had been used in chemical warfare decontamination training sometime between 1930 and 1950.

In the case of the Nike Missile Site, independent research by RAB community members helped to bring about a cleanup of contaminated underground missile storage magazines that otherwise might not have occurred. The Army had proposed no action for the abandoned underground structures.



Location of case studies: Battery Caulfield Nike Missile Site and Inspiration Point Mustard Agent Site. Source: Google Maps, with annotations

RAB community members were concerned that the magazines had not been adequately researched or the interiors investigated, and discovered new sources of information about oil, lead and asbestos contamination in the magazines that changed the course of the investigation.

In the case of the Mustard Agent Site, the unexpected discovery of four discarded vials on the ground near Inspiration Point in 2002 brought to light the fact that Army archive search reports that stated there was no evidence of chemical warfare training at the Presidio were incomplete and incorrect. Although RAB community members had suggested in 1997 that there appeared to be traces of trenches used for warfare training in a wooded area below Inspiration Point, the Army's reports had not included searches of 12 national document archives that held records on chemical warfare training at the Presidio. The discovery of the mustard agent vials resulted in minor injuries to one person and caused a popular redwood grove and rare serpentine grassland area to be fenced off from the public for five years while the Army conducted a new archive search report and field investigation.

During the two decades of operation of our RAB, community members came to believe that historical research is critical to formulating appropriate remedies at environmental remediation sites. In previous chapters, we have given some examples of how incomplete research resulted in the Army overlooking important information about the extent, the nature, and, in several cases, the existence of contamination sites such as waste landfills and petroleum facilities that leaked hydrocarbons into soil and groundwater.

In some of these cases, missing information discovered by RAB community members resulted in expanded investigations and the formulation of more protective remedies suitable for the new national park. We believe the two case studies in this chapter illustrate the importance of comprehensive historical research and field investigation.

Case 1. Battery Caulfield Nike Missile Site

The Presidio's Nike Missile Site, which was constructed in 1955, was one of 12 Nike missile sites that once ringed the San Francisco Bay Area. The Presidio was also the headquarters of this missile defense network, which was known as the San Francisco Defense Area.

The facilities were among nearly 300 Nike missile-firing batteries built and operated by the Army during the Cold War years from 1953 to 1979 as a last line of defense against potential Soviet bombers. The Presidio launch site was designated by the Army as SF-89L. As was the case with most Nike batteries, launch signals, if needed, would come from a radar and control system placed on a higher elevation in a separate location, known as SF-89C, on Mount Sutro in San Francisco. The Presidio battery was deactivated in about 1963 after the next generation of Nike missiles, the longer-range Hercules, reduced the number of missile launch sites needed.



Present-day view of restored dunes and Lessingia habitat area south of former Nike Missile Site, showing remnant of native live oak woodland (seen from the east)

The site, called Battery Caulfield, is on a hill in the southwest part of the Presidio. The site is bordered on the south by an ecologically valuable area known as the Nike Swale. The swale contains several significant types of native plant and wildlife habitat area, including wetlands, central coast riparian scrub and central dune scrub. A locally rare remnant of native coast live oak woodland borders the swale. To the south of the swale is a dune restoration area and the former Public Health Service Hospital, now renovated as apartment housing.

Like most Nike Ajax missile installations, the Presidio battery contained three large underground magazines, each of which housed 10 missiles and a hydraulic elevator for raising them to the surface for launching. The 34-foot missiles had a range of 25 miles and carried conventional high explosives; nuclear warheads were not used on Ajax weapons. A retired soldier we interviewed said Nike batteries were typically manned 24 hours per day by squads of about a dozen soldiers. The installation had random drills, and when the alarm to begin launching missiles was sounded, the soldiers on duty did not know whether it was a rehearsal or a real attack.

The Army deactivated the facility and removed the missiles in about 1963.

In 1974, the Army dismantled the facility by removing the usable equipment and turned off the groundwater pumping system in the elevator shafts, which allowed water to fill two of the abandoned 20-foot deep magazines. At the time the RAB was founded in 1994, the six-acre site was fenced off for a storage and maintenance yard and the three magazines appeared derelict and abandoned. The ground-level elevator bay doors were welded closed and locked, but one had rusted through in one section and standing water with an oily sheen could be seen inside.



Condition of abandoned underground Nike missile magazine at Battery Caulfield c.1995

The Army's existing investigation showed contaminants including heavy metals and petroleum hydrocarbons in surrounding soil; mercury and chromium in groundwater; and antimony and hydrocarbons in the standing water in the underground structures. The Army's 1997 Feasibility Study concluded, however, that the magazines were innocuous. It proposed limited excavation of contaminated soil around storm drain outfalls, but otherwise welding the magazine doors shut.

RAB community members were concerned that hydraulic fluid and other contaminants left in the structures could leak out into the groundwater, affecting the Nike Swale, the Public Health Service Hospital District and possibly the Lobos Creek drainage area. Fortunately for our research, the U.S.-Soviet strategic arms limitation treaty had allowed each country to create an educational Cold War museum with historic missiles and equipment accumulated in one facility. It happened that the restored U.S. Nike missile site was nearby in the Golden Gate National Recreation Area, at Fort Barry in Marin County. The Fort Barry site contains restored Nike magazines similar to those in the Presidio and is manned by volunteers with extensive knowledge of their construction and former operation.

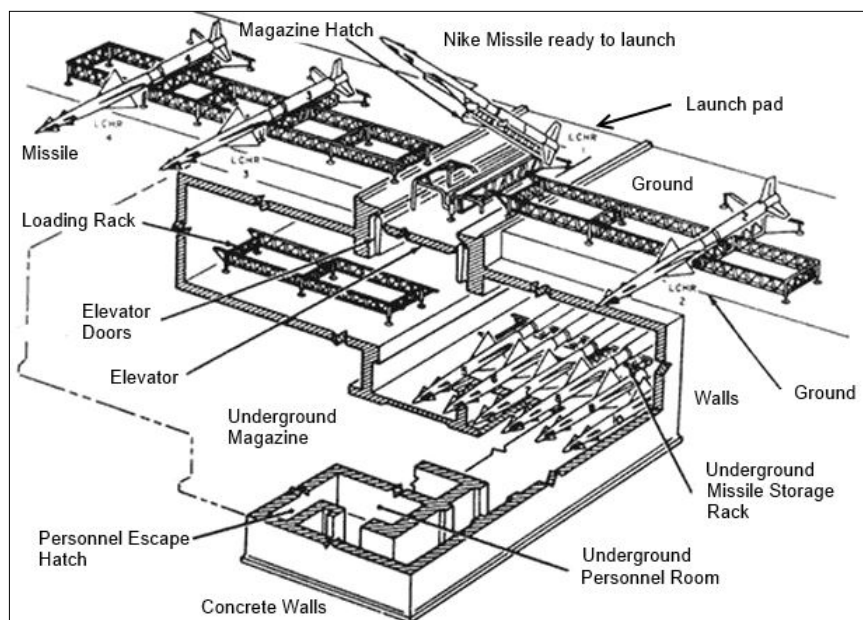


Fort Barry museum with restored Nike missile site and launcher loaded with Nike missile. Photo: National Park Service

In March 1997, RAB community members Doug Kern, Mark Youngkin and Julie Cheever visited Fort Barry and interviewed retired Army Colonel Milton B. Halsey Jr., the museum site manager, about the similarities between that site and the Presidio facility. The sketch drawing on the next page shows the typical construction of a missile site with underground missile storage magazines. In 1995, Halsey had previously inspected the westernmost Presidio magazine, which was dry, and had peered into the other two magazines and seen standing water. He told us the construction of Nike structures was quite standard and that each contained an oil tank and related piping that held 271 gallons of hydraulic oil previously utilized in the elevator mechanism.

Halsey noted that all the hydraulic elevator systems appeared to remain in place within the Presidio magazines, and said he considered it likely that the three underground storage tanks still contained hydraulic oil. He had requested to salvage hydraulic-oil system parts from the magazines for the continued operation of the Fort Barry museum elevator equipment.

Halsey also reported that lead-based paint was removed from the Fort Barry magazines by sand blasting and that asbestos was also found and removed. This information added a concern for RAB members that the Presidio structures might likewise



Sketch drawing of a typical Nike missile battery facility showing cutaway view of underground missile storage magazine. Source: U.S. Army

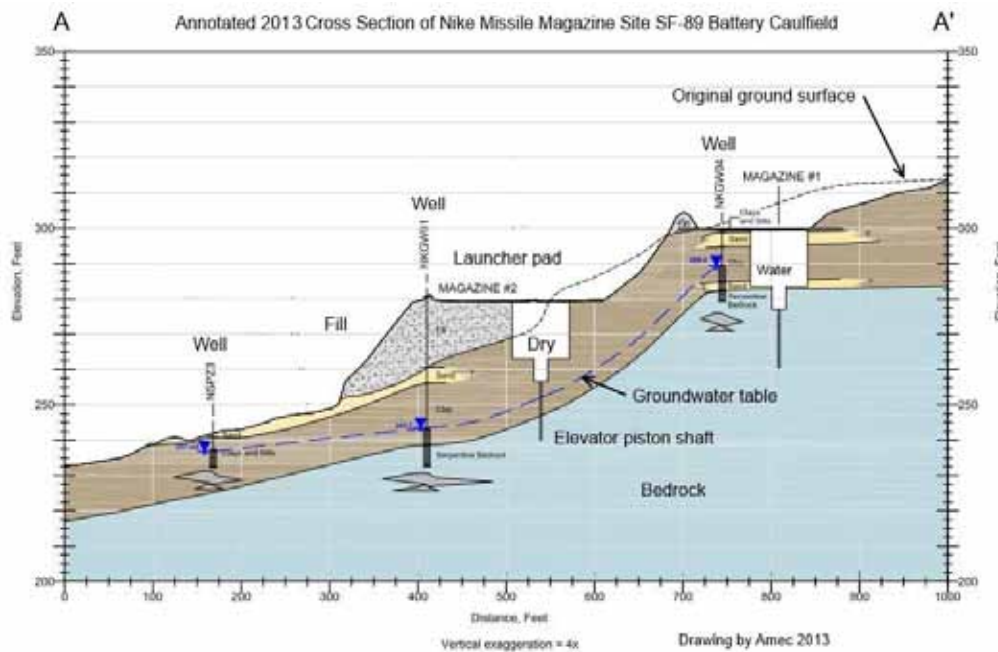
contain lead and zinc-based fire-resistant paint and asbestos fireproof sheeting, in addition to hydraulic oil, that could leak into groundwater.

Halsey described how the elevators used a large piston shaft that extended some 20 feet below the magazine floor and could be a conduit for groundwater to enter the magazine. He believed groundwater could also enter the magazines through the elevator shaft drainage system when the sump pump was not functioning, and could also drain out of the structures through the open drain pipe system and discharge onto the nearby Nike Swale.

Mark Youngkin and Julie Cheever also visited the Army Records Center at the Presidio and obtained a copy of construction blueprints showing the hydraulic-oil tanks and pipes in each abandoned magazine on the Presidio. In April 1997, Mark Youngkin, Doug Kern and Julie Cheever submitted an advisory letter to the Army describing the potential contamination issues that appeared to require investigation.

A subsequent inspection by the National Park Service confirmed evidence of hydraulic oil floating on the water in one magazine. RAB members strongly advocated a full cleanup and closure of the magazines, including removal of the metal doors, elevators, underground storage tanks, and residual hydraulic oil, and pumping out the contaminated water.

In July 1997, community members sent a letter to the California Department of Toxic Substances Control that noted the hydraulic oil floating on the surface of groundwater inside the magazines and suggested that the contamination could pose a threat to groundwater outside the underground structures. The Army Environmental Center continued to maintain that the Nike magazines constituted a safety issue and not an environmental issue under the U.S. Comprehensive Environmental Response,



Cross-section drawing showing geology and groundwater conditions of the underground magazines at the Nike Missile Site. Source: Presidio Trust, Evaluation of Post-Remediation Groundwater and Seep Water Monitoring Results, Nike Facility, January 2013, prepared by AMEC Environmental & Infrastructure, Inc., with annotations added.

Compensation, and Liability Act regulating hazardous substances. Community members urged the DTSC, which supervised CERCLA cleanups at the Presidio, to require the Army to begin remediation of the abandoned magazines immediately as a CERCLA cleanup site.

The cost for this work had not been allocated in Army cleanup budgets, however, and the Army initially declined to alter its proposal for the site. On the basis of the documentation that had been gathered, the DTSC stepped in and asked the Army to remediate the magazines. Eventually, a decision was made to clean up the structures and the Army did investigate and remove the contaminated groundwater from the magazines. By installing drain plugs to prevent groundwater from filling the magazines, the Army was able to remove the hydraulic oil, the oil tank and piping system, damaged asbestos fireproofing, and residual sludge from all three magazines in 1999. The magazine interiors were pressure-washed to remove deteriorated lead-based paint.



Interior view of underground Nike missile storage magazine following environmental cleanup. Photo: U.S. Army

When the procedure was finished, the drain plugs were removed and two of the magazines flooded with groundwater again.

The photograph on the previous page shows the interior condition of one of the magazines following the Army's cleanup action. After completion of the remedial work and removal of usable equipment, the magazine doors were locked and secured by placing steel plates and straps over the access openings and entry hatches.

In 2008, the Presidio Trust removed 900 feet of storm drain pipelines along with one foot of underlying metal-contaminated soil (about 7,000 tons) for off-site landfill disposal. The Trust also excavated contaminated sediment deposited from storm drain outfalls discharging onto the adjoining Nike Swale habitat restoration area. The DTSC required a Land Use Notification for future groundwater use and future disturbance of the residual sludge remaining in the magazine escape hatches.



Present-day view looking south from Nike Missile Site, showing Nike Swale with restored dune habitat and former Public Health Service Hospital in background

Case 2. Inspiration Point Mustard Agent Site

During RAB field inspections in late 1996, community members observed trenches and small fox holes exposed within the redwood grove at Inspiration Point. Portions of the holes appeared recently dug out with crudely constructed wood forts nearby suggesting a child's play area, shown in the photograph on the next page. We suspected these trenches could be abandoned combat training features and were concerned that unexploded ordnance (UXO) might still exist. Community members informed the U.S. Army Corps of Engineers during a 1997 RAB meeting that a potential warfare training area might exist at Inspiration Point. Army representatives responded that the Army's historical research revealed no documentation of a warfare training facility in this area of the Presidio. No further action occurred in the 1990s.



Location of former World War I-era warfare trench training site within current serpentine grassland habitat restoration area at Inspiration Point

The Inspiration Point area in the southern Presidio consists of an overlook with a view of the Tennessee Hollow Watershed, and below that and to the north, a redwood grove and a rare serpentine grassland. The grassland is the only coastal serpentine grassland plant community within the Golden Gate National Recreation Area.

It is the site of three rare plants, including one of the last remaining natural populations of the flowering Presidio Clarkia. Park staff and community volunteers, known as park stewards, work together on native plant restoration in the area.



Remnant of 1918 West Cantonment Trench System showing foxhole in redwood grove at Inspiration Point in 1996

In 2001, Presidio natural resource managers decided to remove some exotic forest and ground cover and expand the endangered serpentine grassland community at Inspiration Point. First, the ground had to be cleared of pine needle duff from where pine trees had been cut down and the exotic vegetation removed by hand pulling and digging. Unfortunately, the natural resources staff and community volunteers were not aware that historic warfare training trenches existed in the restoration area.

On Oct. 16, 2002, volunteer workers discovered four small glass bottles containing residual crystallized material in the habitat restoration area. The bottles were lying on the ground surface beneath a layer of pine needle duff. The volunteers took them to a staff archaeologist, who suffered burns and blisters on her hand after examining and washing one of the four vials in a laboratory six days later.

The photograph shows an example of the bottles found.

A U.S. Army Technical Escort Unit arrived at the Presidio and removed the four bottles for testing and proper disposal. The vials found at the Presidio were labeled “HS-Toxic Gas-Set M1.” The Army’s testing confirmed that the discarded bottles contained dry residue of the liquid form of a chemical warfare agent known as a mustard agent, mustard gas or sulfur mustard, which causes blistering of the skin and mucous membranes. The vials were part of a kit used to train military personnel in identifying and decontaminating chemical warfare agents.



Example of vial.
Photo: U.S. Army

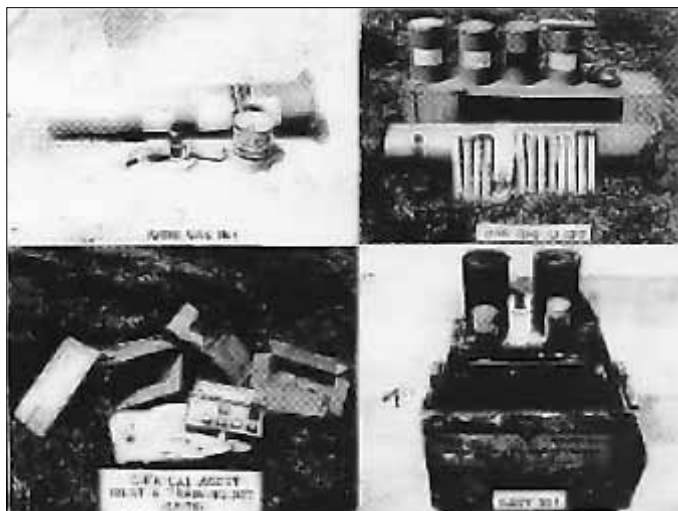
The four bottles that were found at the Presidio were identified as part of a military Chemical Agent Identification kit called Toxic Gas Set M-1, shown in the photograph on the next page. The M-1 kit was one of 17 different types of kits used by the Army for training exercises and approximately 110,000 kits were manufactured from the 1930s through the 1950s for distribution across the nation. We understand that the majority of these chemical warfare training kits are lost and

have not been accounted for in Army records. The Army conducted a detailed inspection and metal detector survey of a 50- by 100-foot area where the bottles were found and the Trust secured the forest and grassland area with 2000 feet of six-foot high fencing in November 2002. The area was to remain fenced off from the public for the next five years. The incident was reported in local and state newspapers and caused public concern.

Shortly after discovery of the bottles, a park docent, Barbara Corff, conducted independent research at the Park Archives and Records Center at the

Presidio and found a 1943 Army newsletter for the Presidio called the “The Fog Horn” with an article entitled “Chemical Service is Prepared for Whatever Happens.” The article described how the Presidio’s Chemical Warfare Office routinely conducted training exercises in defense against chemical attack on the Presidio that enabled “every member of this command to learn the characteristics and odor of each type of chemical agents.” The Army had not previously reported warfare chemical agents on the Presidio.

In a letter to the Trust’s environmental program manager on November 15, 2002, community members cited the newsletter article and suggested that the Trust could use the information and other historical resources to develop an independent investigation that did not rely on Army research. In the end, however, because the Army is responsible for finding and removing any discarded ordnance, chemical agents or contamination found at former warfare training ranges, the DTSC required the Army to begin its investigation by conducting a new, more comprehensive archive search report.



Typical chemical training kits used for combat training during 1930s through 1950s. Photo: U.S. Army



Presidio soldiers in basic warfare training with gas masks and bayonets in 1917. Photo: original photograph from private collection of Barbara Corff



Photograph from 1917 showing warfare training trench at Presidio.

Photo: original photograph from private collection of Barbara Corff

In early October 2003, the St. Louis District office of U.S. Army Corps of Engineers released the new Archive Search Report covering the former use of warfare ordnance and chemical, biological and radiological warfare agents at the Presidio. A Corps representative gave a presentation on the report to the RAB at its Oct. 14, 2003 meeting. The report was a comprehensive effort to determine what types of ordnance and explosives were historically used at the Presidio. The effort required researching documents at all 12 national government and military document repositories. The study disclosed additional areas of environmental concern at the Presidio including firing ranges, a grenade practice range, a large trench warfare training ground, and various areas for mustard gas agent storage and training.

The report identified three areas of the Presidio that could contain residual chemical warfare material such as mustard agent, lewisite, phosgene, and chloropicrin. The areas were 1) the 1918 West Cantonment Trench System; 2) Baker Beach Gas Chamber; and 3) the Building 672 Gas Chamber. The gas chambers were used for training soldiers in proper fitting of their gas masks. The forgotten 1918 West Cantonment Trench System (not previously reported by the Army) was where the four mustard agent bottles were discovered in 2002.



Presidio Trust environmental remediation manager Craig Cooper and RAB community member Jan Blum inspecting remnant warfare training trench in redwood grove in 2003

The new research was disturbing to community members because the Army had performed a previous Archive Search Report for the Presidio in 1990 and IT Corporation had subsequently conducted in-depth historical research in 1999 that had not revealed evidence of war gas agent storage and training on the Presidio. These research efforts, however, had not included a search of the 12 national document repositories where historic documentation on the Presidio's warfare training was now stored.

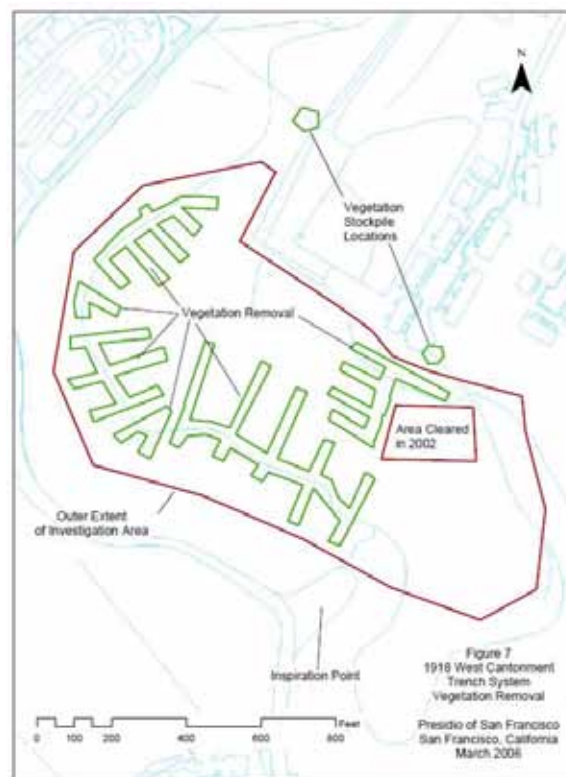
The 2003 report identified the many types of warfare training ranges used at the Presidio, but the locations were often not specified. According to the report, war gas agent training had taken place at the Presidio for many years and the bottles discovered at Inspiration Point were discarded sometime between 1930 and 1950. The U.S. Army Corps of Engineers believed the bottles were most likely discarded after a decontamination training exercise as a one-time incident.

The 1918 West Cantonment Trench System encompassed a large area with warfare training trenches built on two ridges. The figure from the 2006 U.S. Army Corps of Engineers Work Plan shows the trench system identified by the Army at Inspiration Point through the use of overhead and oblique historic aerial photographs.

The site of the trench system is adjacent to a residential housing area and the site of Pop Hicks Field, an Army-era ball field built over part of Landfill E. At the request of community members, the Trust and DTSC sent letters in 2004 and 2005 to the Army Corps of Engineers requesting immediate investigation of the warfare training areas documented in the Archive Search Report.

While this investigation was awaited, the Inspiration Point area was fenced off from 2002 through 2007 and the public lost access to the redwood grove and a popular hiking trail. Habitat restoration efforts in the Inspiration Point serpentine grassland habitat, which were halted after the discovery of the bottles, remained on hold.

On July 12, 2005, community members, concerned about the slow pace of Army progress on the mustard agent site, unanimously approved a resolution and a letter to the executive director of the Presidio Trust asking for assistance in facilitating the start of the investigation at Inspiration Point.



Outline of 1918 West Cantonment Trench System at Inspiration Point. Source: U.S. Army Corps of Engineers, Draft Final Chemical Warfare Material Sites Investigation Work Plan, March 2006.

The U.S. Army Corps of Engineers developed a “Chemical Warfare Material Sites Investigation Work Plan” and presented the final draft, dated March 2006, at the RAB meeting on August 14, 2007. The DTSC approved the work plan and the Army subsequently performed a selective removal of vegetation and debris from trenches, searched for latrine pits, inspected ground cover for warfare materials, and performed limited soil sampling for chemical agents and breakdown products at the 1918 West Cantonment Trench System.

The Army investigation did not discover additional mustard agent bottles or other warfare materials at the trench system. The fence was removed in late 2007 and habitat restoration soon resumed in the Inspiration Point area. The investigation also included sampling at the two former training gas chambers and selected other warfare training sites and no warfare agent concerns were discovered.

Although no additional warfare materials were found in the 2007 investigation, we note that only a small portion of the potential 1918 West Cantonment Trench System, identified in historic aerial photographs, was cleaned and sampled by the Army. RAB community members recommend the implementation of a Land Use Notification for the 1918 West Cantonment Trench System to notify future project managers of the potential for discovery of such materials. Land Use Notifications are further discussed in Chapter 10.



A portion of the 1918 West Cantonment Trench System after clearing and soil sampling in May 2007. Photo: U.S. Army Corps of Engineers, Final Chemical Warfare Material Sites Investigation Report, February 2008



Present-day view of serpentine grassland restoration area at Inspiration Point, following Army investigation of 1918 West Cantonment Trench System



THE PRESIDIO OF SAN FRANCISCO RESTORATION ADVISORY BOARD



FINAL REPORT

Twenty Years of Public Participation 1994-2014
in the Environmental Cleanup of Our New National Park

Chapter 7. Getting the Lead Out

The issue of lead contamination was first raised by community members of the Presidio of San Francisco Restoration Advisory Board during the board's earliest meetings in 1994. When the RAB adjourned in April 2014, lead pollution was still an ongoing concern.

Lead contamination was widespread at the Presidio, occurring at cleanup sites within all three of the remediation programs: the Petroleum Cleanup Program, the Lead-Based Paint in Soil Cleanup Program and the CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act) Cleanup Program for hazardous substances. In this chapter, we discuss where lead contamination was found at the Presidio and the measures taken during the 20 years of cleanup activities to counter the risks to park residents, visitors and the environment.

Lead is a heavy metal that is toxic to people, animals and plants. Children are especially susceptible to being harmed, and even small amounts of lead can cause developmental problems, neurological impairment and lowered IQ in young children. Lead is pervasive in our environment because, for many decades, society embraced the use of lead in industry, transportation, consumer products and housing. As the seriousness of the risk of lead poisoning began to be recognized, federal and state governments passed regulations between the late 1970s and the 1990s reducing or eliminating lead in gasoline, house paint, children's toys and other common products.

Even though much of the hazardous use of lead was phased out nationwide, contamination resulting from former uses remained a risk at the Presidio, as at many other sites in the United States. At the Presidio, contamination sources included municipal waste, incinerator ash and building demolition debris buried in Army-era landfills, from which the lead could percolate into groundwater and streams.



Advertisement c.1915

Lead bullets were lodged in soil at former firing ranges. Flakes of deteriorating lead-based paint on buildings fell into surrounding soil, where they posed a particular danger to children who might touch the soil or play in it. The sandblasting of lead-based paint on the viaduct leading to the Golden Gate Bridge also deposited contaminated paint flakes and dust in the earth below. Lead in car exhaust was transported from Presidio roadways by storm water and wind to nearby soil, wetlands, streams and Mountain Lake.

This chapter discusses six topics related to RAB community members' concerns about lead contamination and their participation in lead remediation at the Presidio. These topics are:

- a) Why lead is a public health concern;
- b) Lead-based paint in soil;
- c) Lead in landfills and debris fill;
- d) Lead in sediment;
- e) Aerially deposited lead from auto exhaust;
- f) Lead as an ongoing community concern.

These topics are briefly outlined below and then discussed in more detail in the following sections of this chapter.

- As research on the dangers posed by lead has continued in recent years, the level of lead considered safe in children's blood has dropped sharply. The U.S. Centers for Disease Control has now concluded that "no safe blood lead level in children has been identified." At the same time, the state and federal regulatory standards for



Aerial photograph of Presidio of San Francisco. Source: Bing Maps, with annotations added.

when lead in soil must be investigated and addressed also became more restrictive during the two decades of the RAB's operation.

- Lead-based paint contamination in the soil around Presidio buildings was addressed in the Lead-Based Paint in Soil Cleanup Program. This program, which was strongly advocated by RAB community members, was begun by the Army in 1995 for residential buildings and completed by the Presidio Trust between 1999 and 2014 for all structures. By June 2014, the state Department of Toxic Substances Control, which had oversight responsibility for the program, certified that the soil around more than 800 residential and office buildings at the Presidio was investigated and either excavated, treated or deemed to require no further action.

- Lead buried in landfills, former shooting ranges, incinerator sites and the soil around former military defense batteries at the Presidio was addressed in the CERCLA Cleanup Program for hazardous substances, also overseen by the DTSC. By May 2014, the Army and the Trust completed remediation work at 76 CERCLA sites. The sites included 12 landfills where contamination was fully excavated, in a process known as clean closure, which was advocated by RAB community members. At several other landfills, contamination was contained by engineered soil caps.

As RAB members studied the CERCLA program at the Presidio, we became aware that soluble lead contamination was an important issue in the excavation and removal of landfills. (Soluble lead is lead that can be dissolved in and transported by groundwater and surface water.) We learned that lead contamination is common in older building materials and the resulting demolition debris may pollute landfills with soluble lead that could leach into groundwater and streams. In some landfills, the extent of lead in debris, incinerator ash and other types of waste was greater than expected, adding to the cost of remediation.

- Lead emitted in automobile exhaust and carried by storm water runoff from roadways to the sediment of wetlands, streams and Mountain Lake was regulated by either the DTSC or the state Regional Water Quality Control Board, depending on the location. In the late 1990s, the cleanup of the Crissy Field area included the removal of lead-contaminated sediment from storm drains that likely resulted at least in part from vehicle exhaust on nearby roadways. Lead contamination transmitted in runoff from Highway 1 was discovered in the sediment of Mountain Lake in 2000 and was later removed in a dredging operation, as is described in Chapter 8.



Recent view of shoreline at Crissy Field Beach, where lead, polycyclic aromatic hydrocarbon and skeet contamination was removed at former Army-era firing ranges

- Lead was also implicated in the Petroleum Cleanup Program at the Presidio because some of the gasoline leaked from tanks, pipelines and former motor vehicle fueling stations at the Presidio contained lead. This program is described in Chapter 1 and in the discussion of the Crissy Field cleanup in Chapter 4. This type of lead contamination is not the subject of a separate topic in this chapter because it was remediated at the same time as the petroleum products.

- Lead from automobile exhaust that was aurally deposited in soil was not included in the remediation program because, as of 2014, that type of lead contamination was not regulated in California.

- RAB community members believe the environmental cleanup program at the Presidio made great strides in removing lead contamination, but that lead remains a concern throughout our society. In areas of the Presidio where lead is not regulated or there may be concerns about residual lead contamination, we endorse the use of the Presidio Trust's Land Use Notification system as a possible mechanism to protect residents, visitors and the environment from potential risks of lead contamination.

A. Why Lead Is a Public Health Concern

Industrial society has utilized lead for centuries and lead has become ubiquitous in the urban environment. It was used in paint, water pipes, plumbing fixtures, plumbing solder, building materials, window glass putty, light bulbs, batteries, ammunition, toys, newspaper ink, food cans, glassware, ceramic dishes and rubber goods, among many other products. Lead was widely employed as an agricultural pesticide until replaced by agrochemicals in the 20th century. Lead was added to paint as a pigment and used to speed drying. It was a valuable additive because it made paint last longer (including one type of paint that contained up to 80% lead and was known as “white lead”), and lead-based paint was commonly used in households until it was banned in 1978. Lead-based paint is still used to paint stripes on roadways and parking lots.



Vintage advertising poster for Dutch Boy brand lead-based paint. Source: Google News archive

Lead was used in gasoline to reduce engine “knocking” and make cars run more quietly, and to boost octane ratings beginning in the 1920s. After the health and environmental damage caused by the additive began to be recognized, the use of lead in gasoline was phased out starting in the 1970s. It was fully banned in California in 1992 and nationwide in 1995. California (and other states and the federal government) also now regulate the amount of lead in schools, plumbing fixtures, paint, toys, candy, jewelry, and the workplace. Lead solder in food cans was banned in the 1980s.

The impact of lead contamination on the environment was demonstrated in core sediment samples taken from the bed of Mountain Lake in the Presidio by a graduate student, Liam Reidy, at the University of California at Berkeley in 2000 for a master's thesis study. The four-acre lake is located near the southern border of the Presidio adjacent to state Highway 1, one of the main arteries to the Golden Gate Bridge. The purpose of Reidy's study was to collect data on historical pollen, metal and chemical deposits in the sediment over 2,000 years. As is described in Chapter 8 of this report, the study resulted in the discovery and eventual dredging of a layer of lake sediment heavily polluted with lead emitted in the exhaust of cars using leaded gasoline on Highway 1 between 1940, when the highway opened, and 1992, when lead was banned from gasoline in California.

As illustrated in the chart, the study revealed that before the arrival of Europeans at the Presidio in 1776, only very small amounts of lead were deposited in lake sediment (in concentrations of less than 20 parts per million, which were consistent with background levels of lead in local geological formations). Lead and other metals began to increase in the lake sediment after the start of European settlement in the Presidio in 1776. A further rise in lead concentrations during the 1800s demonstrated the widespread use of lead and other metals in American society. Then, a pronounced spike in lead and metal concentrations in shallow sediment, where lead concentrations exceeded 1,000 ppm, began at the time Highway 1 opened to traffic on the western border of the lake in 1940.

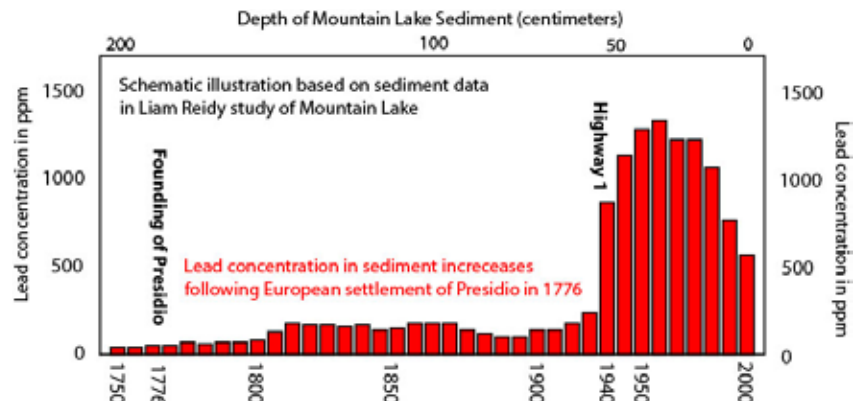


Chart of lead concentrations in sediment versus depth-time showing increase in lead contamination following construction of Highway 1 in 1938-1940

As one of the most stable elements, lead is extremely durable and does not break down easily after being deposited in the environment. Lead waste buried in landfills poses the risk of leaching into groundwater, surface water and wetlands years later. Disturbance of landfills by people, animals or earthquakes can increase the danger of exposure for workers, visitors, nearby residents and children.

One of the most hazardous sources of lead exposure for children is deteriorated lead-based paint from the interiors and exteriors of older houses. Lead particles and paint chips from deteriorated paint are an important path of exposure for young

children because children often put their fingers in their mouths after touching the contaminated flakes or dust. In soil surrounding houses, the area most likely to have been contaminated by peeling paint is known as the drip line or drip zone and is usually measured as extending three feet from the exterior of the building. Young children playing in this zone are susceptible to ingesting lead if they put their hands in their mouths after playing in the dirt, or after touching toys they played with in the soil. Lead in bare soil outside a house can also be tracked indoors by adults, children and pets.

The U.S. Centers for Disease Control and Environmental Protection Agency say that, following the elimination of lead from gasoline and many other products, lead dust from deteriorated lead-based paint is now the most significant contributor to childhood lead poisoning.

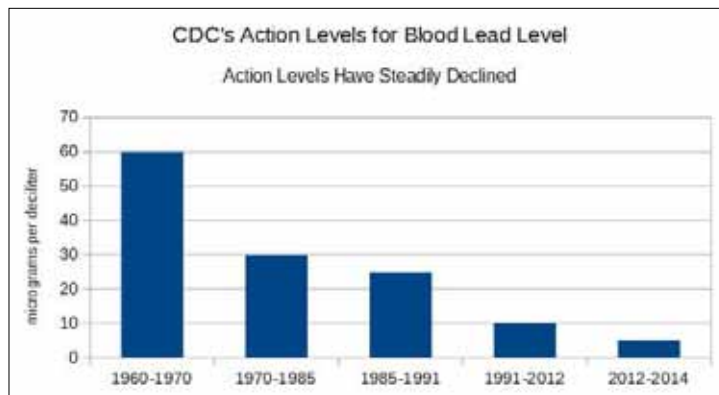
Children and adults take in lead either by breathing the dust or by swallowing particles or paint chips. Lead is distributed through the blood to tissue and bones, where it accumulates. Children are especially vulnerable to lead because their bodies absorb it more easily and are more sensitive to the effects. Even small doses of lead can result in learning disabilities, lowered IQ scores, reduced attention span, slowed growth, behavioral problems, kidney damage and impaired hearing. High levels of lead can permanently affect the brain, bones, nervous system and heart.

Pregnant women and developing fetuses are also vulnerable to lead poisoning. Adults other than pregnant women are less susceptible, but can suffer neurological and brain damage when exposed to lead at higher doses. Lead poisoning effects in adults include high blood pressure, memory loss, reduced fertility, muscular weakness, joint pain, headache and anemia.

Since efforts began in the 1970s to remove lead from households, schools and gasoline, the average blood concentration of lead in children has dropped dramatically. At the same time, however, the level of lead considered safe in children's blood has also fallen sharply, to the point where the CDC has now concluded that "no safe blood level in children has been identified."

Average blood lead levels in children five years old and under dropped from 16.5 micrograms per deciliter ($\mu\text{g}/\text{dL}$) between 1976 and 1980 to 3.6 $\mu\text{g}/\text{dL}$ between 1992 and 1994, a decline of 78 percent. The decrease was due largely to the phasing out of lead in gasoline between 1976 and 1995. By 2014, the average blood level of children aged one to five in the United States had dropped further to 1.9 $\mu\text{g}/\text{dL}$.

Meanwhile, as shown in the chart on the next page, the CDC action level, formerly known as level of concern, has grown more restrictive in the last half-century, decreasing from 60 $\mu\text{g}/\text{dL}$ in 1960 to the present 5 $\mu\text{g}/\text{dL}$. The CDC also recommends that children with lead above 45 $\mu\text{g}/\text{dL}$ should receive medical treatment. While saying that no level of lead in children's blood is safe, the CDC has set a reference level of 5 $\mu\text{g}/\text{dL}$ as an "action level." This level represents children in the highest 2.5 percent of those tested for lead in blood and is a point at which public health and housing agencies should be notified of potential at-risk populations and environments where there is the greatest need for preventive measures.

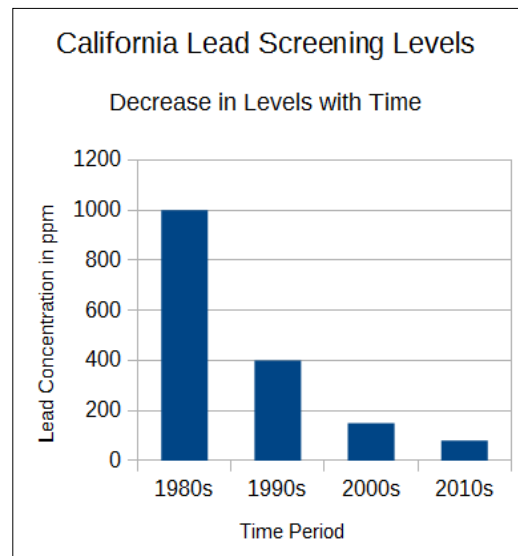


CDC action levels for blood lead concentration in children have grown more restrictive in the last several decades. Source: U.S. Centers for Disease Control and Prevention

Although lead can be found in many sources, lead exposure is entirely preventable. The CDC, which was mandated by Congress in a 1988 law to seek to end childhood lead poisoning, now emphasizes that the best way to meet that goal is to prevent, control or eliminate lead exposure.

Along with blood-concentration action levels, the screening level that regulatory agencies consider safe for lead in the environment also declined steadily during the RAB's 20 years of operation between 1994 and 2014. The chart shows the decrease in the California screening level for lead in soil at residential sites from the 1980s through 2014. A screening level, showing the concentration of a chemical in soil or water, is used as a first step in evaluating whether that chemical may pose a risk to human health at a particular site. The final determination as to whether there is a hazard that must be remediated is based on several factors, including the future land use of the site.

The Army began the cleanup using a screening level of 1000 parts per million or ppm (or 1000 milligrams per kilogram). At the time the RAB was established in 1994, the screening level for human health on residential land was 400 ppm. As a growing body of research began to reveal that children are significantly harmed when exposed to far lower levels of lead than previously realized, the California Environmental Protection Agency revised the level downward to 150 ppm in the following decade. In 2009, CalEPA lowered the level further by using a more stringent method of estimating the amount of lead in soil that would cause an incremental increase in blood lead of a child exposed to that soil. The new methodology decreased the residential screening level for lead to 80 ppm for newly investigated sites.



California screening levels for lead in soil have become stricter over the last several decades. Source: California Environmental Protection Agency

B. Lead-Based Paint in Soil

The subject of lead-based paint in soil arose at the first meeting of the Presidio RAB on May 17, 1994, when the newly seated community members requested a presentation on the cleanup of lead contamination discovered in the northwestern Presidio at the Golden Gate Bridge. The earth under the approach to the bridge had been found in 1992 to contain lead at hazardous levels of up to several thousand parts per million, resulting from years of sandblasting lead-based paint on the bridge and the viaduct leading to it. Although the land was part of the Presidio, the cleanup was being carried out by the Golden Gate Bridge District, as the responsible party, rather than by the Army. The situation was of great public interest because of the high lead levels and because the California Department of Toxic Substances Control had ordered the area fenced off to protect the public. The RAB received a presentation by bridge district officials the following October on the first phase of the cleanup project, which was aimed at making the area safe for workers who would be carrying out a seismic retrofitting of the bridge.

In the spring of 1995, community member Sol Levine became the first person to alert agency and community members of the RAB to the issue of lead-based paint in soil around residential buildings.

At the time, the Army was preparing to survey and remove deteriorating asbestos and lead-based paint from

the interiors of the more than 400 houses in the Presidio, in a project that was separate from the environmental remediation program. The housing was expected to be leased in the future to civilian tenants after the Army left the Presidio and the base became part of the national park system. The abatement of lead-based paint in the interior of the houses was being carried out under a 1992 federal housing law, the Residential Lead-Based Paint Hazard Reduction Act. The Army had not planned, however, to look at whether deteriorated exterior paint had contaminated the soil surrounding the buildings.

Sol Levine, who was a lead inspector and a member of the National Lead Abatement Council, was an outspoken advocate of lead-based paint sampling and remediation at a time when the full extent of lead poisoning in children was just being recognized nationwide. At the RAB meeting of March 21, 1995, he urged the Army to investigate the soil around residential buildings, saying that lead in soil “is the most critical area that they have as far as lead poisoning in children....Because children go out and they get that dirt and put that dirt right in their mouths.”



“In the 1930s the original primer paint on the Bridge was two-thirds (by weight) lead.”

Source: Golden Gate Bridge District website

The Army decided to investigate the soil, identified funding and engaged a contractor to test soil samples around residential buildings beginning in July 1995. The resulting project sampled the earth around 477 residences, garage structures and 22 playgrounds. Soil at 160 buildings contained lead levels high enough to be a public health concern and the Army began mitigation efforts at the residential structures.

Because the project was carried out under a housing law, it left more than 300 non-residential buildings at the Presidio without plans for soil sampling. These buildings were also slated to be leased for civilian uses such as office space, recreational facilities and museums after the Army left the Presidio. The National Park Service requested that the Army broaden the sampling program to include testing for lead contamination around the non-residential buildings where the park's many visitors and residents could be exposed to lead-based paint contaminated soil.

By 1996, the U.S. Environmental Protection Agency and California DTSC concluded that lead-based paint in soil surrounding non-residential buildings qualified as a CERCLA hazardous substance release and should be investigated and cleaned up under that law. As described in earlier chapters of this report, CERCLA guidelines for addressing hazardous substances are rigorous and require site-specific risk assessments. The Army had never been required to clean up lead-based paint in soil around non-residential structures and was reluctant to accede to the more stringent action, citing the high costs of such a program. It maintained that lead dust in soil around non-residential buildings was not a CERCLA release and disagreed with the U.S. EPA about the appropriate legal authority for responding to it.

Throughout the impasse, RAB community members strongly endorsed the federal and state agencies' position, through comments made at RAB meetings and letters sent to the Army, DTSC, Park Service and federal legislators. Among other statements, a group comment letter by community members on the Army's Feasibility Study for the CERCLA cleanup of Main Installation sites in September 1997 contained a section urging inclusion of lead-based paint in soil in the CERCLA program. The letter was signed by 20 RAB community members. It stated, in part:

We are concerned that the Feasibility Study fails to address lead paint contamination in soil, one of the most significant types of pollution at the Presidio, around the many non-residential buildings at the installation. This contamination could endanger visitors, occupants of the Presidio and park maintenance workers and leave open the possibility of future litigation. We urge the Army to investigate, and, where needed, remediate lead in soil at non-residential buildings.



Older buildings at Fort Winfield Scott in the Presidio, examples of the more than 300 non-residential buildings at the base

The regulatory agencies' argument was bolstered in October 1997 when the DTSC released the results of independent lead sampling in soil around a non-residential building that was temporarily being occupied by an elementary school. The building was part of the former Public Health Service Hospital complex on the southern border of the Presidio. The soil sampling, carried out by the DTSC with assistance from the U.S. EPA, revealed lead at concentrations that the two agencies believed presented a potential health hazard to children at the school. RAB agency and community members also observed the Golden Gate Bridge District's cleanup of the lead dust sandblasted from the bridge viaduct, which was being carried out under a voluntary agreement with the DTSC, and questioned why lead-based paint in soil around the Presidio's non-residential buildings should be considered less of a threat.

After negotiations on a national level, the U.S. EPA and Department of Defense reached a compromise and announced a memorandum of agreement on August 14, 1998. The agreement provided that the EPA would conduct a national pilot program to assess lead-based paint hazards in non-residential areas, including both military and non-military sites. The DoD insisted that the military should not be regulated more stringently than other private industries. In return, the DoD would begin sampling lead-based paint in soil around non-residential structures on a limited basis pending the results of the national EPA pilot study.

In 1999, the responsibility for environmental cleanup was transferred from the Army to the Presidio Trust, as discussed in earlier chapters of this report. A 1999 Consent Agreement between California DTSC and the Presidio Trust concerning CERCLA remediation did not include lead-based paint in soil. But the Trust had supported the expanded sampling of lead-based paint in soil since its creation in 1996 and its new environmental remediation department began voluntarily sampling the soil around suspect non-residential structures.

The testing revealed that lead contamination of soil around non-residential buildings was common at the Presidio. In 2001, the Trust began discussions with DTSC on a Presidio-wide work plan to address the issue at all older painted structures on the Presidio. The Trust submitted the work plan to DTSC in 2004 and after revisions, the document was approved by the agency on October 10, 2008.

In addition to including the non-residential buildings, the work plan also set a stricter remediation standard for lead contamination around residential buildings. Under the U.S. Department of Housing and Urban Development guidelines in effect in the mid-1990s, the Army had removed soil contaminated with lead above a level of 5,000 mg/kg, and was allowed then to place bark chips or a landscape cover over the soil when the lead was in the range of 1,000 to 5,000 mg/kg. The standard set in the DTSC-approved work plan required remediation when lead was found above the 400 mg/kg human health lead level. The Trust returned to residential buildings addressed by the Army in the 1990s and completed the lead cleanup to the new standard.

Certification of completion of the lead-based paint in soil cleanup sites was provided by the DTSC in the form of approval letters for individual buildings or sets

of buildings. The letters certified that no further action was needed because the potentially affected soil within ten feet of structures had been sampled for lead contamination and excavated or covered when necessary. By June 2014, the Trust had received No Further Action approval letters for virtually all the more than 800 Presidio buildings and structures where lead-based paint in soil had been investigated.



Removal of lead-based paint in soil from drip line of non-residential building at Presidio. Photo: Presidio Trust

C. Lead in Landfills and Debris Fill

In previous chapters of this report, we described how RAB community members advocated a complete cleanup of contamination, including lead, at sites such as Crissy Field, the landfills and the Nike Missile Site. A Landfill Closure Resolution approved by RAB community members at the board meeting of May 1997 urged that “clean closure” – excavation and removal of contamination in landfills – was the most appropriate remedy for a national park and the most protective of human health and the environment.

After taking over the remediation program in 1999, the Presidio Trust endorsed the concept of clean closure, stating that it had a preference for that remedy “when practicable, cost-effective and consistent with future land use.” The Presidio may be unique among former military bases in that 12 Army-era landfills and fill sites, one to four acres in size, were removed in clean closure actions by the time the remediation program was completed in 2014. The Trust excavated 11 of the landfills between 2002 and 2010 and the Army and National Park Service removed one other at Crissy Field during the fast-track cleanup and restoration of that area in 1998-1999.

Some Presidio landfills were waste dumps used by the Army during the 20th century to dispose of incinerator ash and trash from military housing, administrative buildings and light industrial operations at the base. These landfills contained the expected lead residue from the many common household and office products that

formerly contained lead. However, as RAB community members studied the data from landfill cleanups during the clean closure process, we became aware that lead contamination in landfills was sometimes more extensive than expected.

When the Presidio Trust proposed the first pilot test to remove two small waste landfills, Landfill 4 and Fill Site 5, from the western part of the Presidio in 2001, lead contamination was not thought to be a significant factor in the removal of abandoned landfills. The previous sampling of landfills had shown areas with elevated total lead results, but the levels were not high enough to be considered hazardous waste under California regulations. The initial clean closure cost estimates were based on less expensive waste disposal prices at local facilities.



Clean closure (excavation) of Army landfill at coastal bluffs near Golden Gate Bridge

The characterization of the excavated soil from the landfills, for off-site disposal, required testing to determine whether soluble lead would leach from the waste into underlying soil or groundwater. Surprisingly, the tests showed soluble organic lead above regulatory levels for a hazardous waste in significant volumes of debris fill in the landfills. Substantial portions of the landfill waste were categorized as a Class I hazardous waste, requiring disposal at a specialized facility designed for the most toxic waste, with very high disposal costs. We learned that landfill areas containing building demolition debris are more hazardous than previously known because of the pervasive lead contamination.

We believe that lead-based paint from demolished buildings along with the lead-contaminated soil from around buildings may be responsible for the high soluble-lead concentrations found in Presidio landfills. When an older building is demolished, the demolition debris can be mixed with the surrounding soil contaminated with lead-based paint particles. Incinerator ash dispersed in landfills and debris fill areas also appears to contribute to the high lead concentrations.

In addition to being placed in landfills, demolition debris mixed with soil was sometimes used as fill to provide a flat surface for the construction of new buildings and parking lots. We learned over the last two decades that fill areas containing debris from demolished buildings occur across the Presidio. These fill areas were not considered landfills by the Army and not initially included in the remediation program.

It was sometimes surprising to project managers when residual contamination, including lead, was discovered at the margins of landfills beyond the originally identified limits of the removal projects. One such site was Fill Site 6, later divided into 6a and 6b, underneath the Army's former Letterman Hospital complex.



Excavation and clean closure of metal-contaminated debris fill from Army-era landfill at Fill Site 1 in the upper Tennessee Hollow Watershed in 2010

Over the years, various buildings in the complex were demolished and the debris was spread over a large area to form level ground for new construction. As described in Chapter 5, Fill Site 6a, now called Thompson Reach, was excavated in 2005 to allow the restoration of part of the lower Tennessee Hollow Watershed and a stream leading to the Crissy Field Marsh. This project was one of the first to identify historic debris fill over a widespread area. The Fill Site 6b area was tested and addressed with land use controls.

The issue of lead-based paint contamination in soil at the sites of demolished buildings has not been fully explored at the Presidio. Also, lead-based paint was used to coat many other types of structures as well, such as fences, towers, curbs, signs and sheds, and the locations of such structures are difficult to identify once they have been demolished. The extent of lead contamination of soil at the Presidio may never be fully known and, in our view, requires continued awareness and attention.

Several previously undocumented fill sites were discovered after the Presidio Trust and DTSC signed the 1999 Consent Agreement governing Main Installation sites regulated under CERCLA, and it is possible that more may be found in the future. In procedures described in Chapter 10 of this report, such sites are tested by the Trust under the supervision of the DTSC and addressed through either voluntary cleanup agreements, land-use restrictions or a DTSC finding that no further action is needed.

One recently discovered site is in the North Fort Scott neighborhood at the northwest corner of the Presidio near the Doyle Drive approach to the Golden Gate Bridge. At the Lendrum Court area, the Army built seven residential buildings on top of graded debris fill in the early 1970s. In 2010, residents became very concerned about shards of broken glass surrounding the buildings. Inspection revealed the glass was associated with numerous gopher holes and had apparently been brought to the surface by the gophers. Test trenches dug by the Trust in 2010 and 2013 showed a three- to five-foot-thick layer of debris fill made up of sand, building debris, melted glass and a layer of ash. The testing of shallow soil showed lead concentrations at levels that indicated a human health risk around the residences at Lendrum Court.



View of typical buildings in the Lendrum Court area of the North Fort Scott neighborhood with Golden Gate Bridge in background

Other contaminants included additional metals, dioxin, furans and polycyclic aromatic hydrocarbons (PAH).

During the recent Doyle Drive Replacement Project, Caltrans discovered a nearby Army-era incinerator location next to Lendrum Court. The former incinerator, used until 1936, is believed to be the source of melted glass and ash at Lendrum Court. Lead-contaminated debris and ash from the immediate site of the former incinerator was excavated or covered beneath the new roadway by Caltrans.

In the spring of 2015, the Trust submitted a work plan for public comment and DTSC approval to remediate the Lendrum Court site. The proposed remedial actions, under a voluntary cleanup agreement, include excavation and containment of lead-contaminated debris fill and ash beneath a permanent soil cover. Long-term management of the Lendrum Court and incinerator areas would include Land Use Controls and containment cap monitoring.



Photograph of debris layer at depth of 2-3 feet below grade with glass and ash in trench sidewall. Source: Erler & Kalinowski, Inc., February 28, 2014, Lendrum Court Investigation Summary Report and Screening Evaluation, prepared for Presidio Trust, Photo T207, Appendix D, with annotation added

D. Lead in Sediment

Lead carried into the sediment of Presidio wetlands, streams and bodies of water by rain and storm water run-off appears to have come from two sources. One was the percolation of rain and groundwater through lead-based paint dust and other lead waste buried in soil. For example, lead was found along with other metals in drainage ditches leading from underground storm drains at the Battery Caulfield Nike Missile Site to the Nike Swale, an ecologically important drainage area downhill from where the missile battery was located. The source of the lead was never determined, but it



Present-day view of Nike Swale habitat restoration area, where contaminated sediment was removed from storm water ditches and storm drain outlet areas

appeared likely to have come from deteriorated lead-based paint from buildings and structures at the Nike site. It was also speculated that flakes of lead-based paint from the interior of the underground missile storage magazines that had fallen into standing water at the bottom of the abandoned structures could have come into contact with groundwater at the Nike site.

The other source of lead in sediment was emissions from automobile exhaust on Highway 1 and other Presidio roadways. As mentioned above, lead was legally emitted from auto exhaust in California for more than six decades from the 1930s through the early 1990s, when leaded gasoline was used. Lead does not burn and passes through the automobile engine as fine particles in the exhaust gas. These lead particles settle on the roadway surface or surrounding terrain as a layer of toxic lead contamination, which can be transported by rain and storm water runoff to the sediment of nearby ditches, waterways and water bodies. If conveyed through storm water pipes, as was the case at the North Arm of Mountain Lake, the contamination can end up settling in sediment at a distance from the original highway source.

During the remediation of Crissy Field in the late 1990s, the Army removed storm drain lines from several areas to allow the cleanup of the site known as the DEH (the location of the former Army Directorate of Engineering and Housing), the excavation of the new Crissy Field Marsh and the reconstruction of the former grassy airfield. The sampling of the sediment in the storm lines revealed elevated concentrations of lead and other metals. The source of the lead in the storm drain sediment could not be determined, but it likely resulted from a combination of lead-based paint in soil and roadway runoff of lead emitted from auto exhaust at the Doyle Drive viaduct and surface streets in the area.

Lead-contaminated sediment in Mountain Lake, discussed in Chapter 8 of this report, was deposited from storm drain outfalls discharging from Highway 1 to the lake. In 2013, a dredging operation was used to remove 17,500 cubic yards of lead-contaminated sediment from the lake. After a RAB community member alerted the Trust and regulators that a previously incorrectly mapped pipe ended in the North Arm wetland of the lake, additional sampling was conducted and another 2,000 cubic yards of contaminated sediment were excavated from the North Arm wetland in late 2013 and early 2014.



View of Mountain Lake in 2013, showing Highway 1 and dredging operation to remove lead-contaminated sediment from the lake bottom

E. Aerially Deposited Lead from Auto Exhaust

As the responsible parties, the California Department of Transportation and the Golden Gate Bridge District investigated and removed lead-contaminated soil within the Presidio along the former Doyle Drive highway and approaches to the Golden Gate Bridge. The lead contamination was attributed mainly to lead-based paint from the elevated metal structures, but likely also contained lead from vehicle exhaust.

In addition to being swept off roadways by rain, lead from auto exhaust can be carried through the air and by wind to the soil next to the highways. It is well documented that aerially deposited lead from automobile exhaust is common along urban roadways and along rural roads as well. Studies have found lead contamination from vehicle exhaust up to 200 meters away from major highways.

But while lead conveyed by water into sediment is regulated in California, lead carried by wind and deposited aerially onto soil is not. Community members were surprised to learn at a RAB meeting in March 2014 that regulatory agencies consider lead deposited aerially from vehicle exhaust to be exempt from their regulatory oversight. In a letter of February 26, 2014 to the Presidio Trust concerning a site known as Play Area 683, the DTSC cited a provision of the California Health and Safety Code, Chapter 6.8, §25321(b), which excludes “emissions from engine exhausts of motor vehicles” from the definition of the release of a hazardous substance.

The context of the letter was that the Trust had been testing and when necessary remediating play areas, defined as open spaces associated with a nearby building but having no history of painted play equipment, under the lead-based paint in soil program. The Building 683 site on Schofield Road in the cavalry stables area is immediately adjacent to Highway 1. Previous soil sampling of a proposed play area by a commercial tenant had revealed occurrences of lead above the 300 ppm applicable lead level, and the play area was never constructed. Further confirmation sampling and remedial excavation by the Trust addressed the lead contamination in 2012. However, some uncertainty remained as to the actual extent of remedial excavation.

In a request for case closure submitted to the DTSC on April 9, 2012, the Trust concluded that the lead contamination was due to aerially deposited lead from auto exhaust rather than lead-based paint because the samples were located more than 10 feet away from a painted structure. The Trust requested no further action for the area. After citing the Health and Safety Code provision excluding auto exhaust from the definition of release of a hazardous substance, the DTSC approved removing the area from the 2008 Lead-Based Paint in Soil Investigation Work Plan.

It thus appears that sites of aerially deposited lead contamination are not regulated and will not be addressed by existing environmental remediation processes at the Presidio. The extent and degree of aerially deposited lead contamination on the Presidio is largely unknown, but in the example above, soil sampling near the Highway 1 corridor revealed elevated lead concentrations that the Trust attributed to aerially deposited lead from automobile exhaust up to 150 feet from the highway roadway.

We understand, however, that the Presidio Trust has voluntarily agreed to track known occurrences of elevated lead and apply its Land Use Notification process to future project activities in the affected areas. As described in Chapter 10 of this report, Land Use Notifications are voluntary notices that do not restrict site uses, but inform present or future users of a site that the area contains or is suspected to contain residual contaminant concentrations not currently regulated by state agencies.

We note that the city of San Francisco recently strengthened a provision of its Health Code Article 22A to require the sampling of land next to elevated highways for lead and other contaminants when development is planned on the land. When originally enacted in 1986, Article 22A required sampling of soil and groundwater before building permits could be issued for construction on historic fill along the San Francisco Bay shoreline of the city. As amended in 2013, the law now also mandates sampling of soil before development can proceed on land within 150 feet of elevated highways within the city; on any land currently or previously zoned for industrial use; and on any land known or suspected by the Public Health Department to contain hazardous substances. The law applies only to city land and not to the federal land in the Presidio. We urge the Trust to develop a similar program to investigate potential lead contamination along major highway corridors.



An elevated section of the former Doyle Drive viaduct at the southern border of Crissy Field; a heavily used highway from 1940 through the 1990s with the potential for aerial deposition of lead from vehicle exhaust to soil and sediment

F. Lead as an Ongoing Public Concern

During the 20 years of the RAB's operation, community members advocated a thorough cleanup of lead contamination, wherever it is found. Much progress on the abatement of lead contamination has been made by the Presidio Trust and U.S. Army during those two decades and the Presidio is a safer place to live in and visit today. Army activities alone did not create all of the potential lead contamination issues that remain on the Presidio. Instead, lead contamination is mainly a signature of urban development caused by generations of Americans using lead products in their daily lives.

The full danger of the impact of lead exposure on small children is still being documented, however, and the research indicates that the potential consequences to children are grave. The residual lead that remains on the Presidio may be unregulated by government agencies and the full extent and degree of residual lead contamination is unknown.

The Presidio Trust's cleanup of the Presidio has been a national model of environmental remediation in many ways. In the area of lead abatement, we urge the Trust to consider taking the additional step of voluntarily conducting field sampling of areas such as land next to roadways, culverts, drainage ditches, demolished buildings and storm water outfall sediment to determine the full extent and degree of remaining lead contamination, if any. Handheld sampling equipment for lead is a proven and easily employed technology for the rapid field screening of soil. We suggest that Trust departments whose staff may encounter suspect soil during field operations, such as natural resources or facilities maintenance, should be equipped with field equipment to screen soil routinely for potential lead contamination.

We also endorse the expanded use of the Trust's Land Use Notification system for areas not regulated by government agencies, such as the occurrence of lead deposited from vehicle exhaust. The Land Use Notification process can serve to raise the awareness of Presidio and National Park Service staff, groups planning to lease or develop space, and the public concerning any potential lead exposure hazard.



View of restored Crissy Field Marsh; environmental remediation of the area included removal of lead-contaminated debris and the cleanup of lead-contaminated sediment from storm drain lines. Photo: National Park Service



THE PRESIDIO OF SAN FRANCISCO RESTORATION ADVISORY BOARD



FINAL REPORT

Twenty Years of Public Participation 1994-2014
in the Environmental Cleanup of Our New National Park

Chapter 8. Mountain Lake: One of the First and One of the Last Projects

Mountain Lake was not the first cleanup site to be studied by the Restoration Advisory Board, but it was among the first. It was also among the last, with the final remediation completed in early 2014. Because of a combination of unusual processes of discovering serious contamination, a lengthy dispute about which agency was financially responsible, and strong public concern about the fate of the lake, Mountain Lake became the longest-running individual project on the RAB's agenda.

A. The Presidio's Only Lake

The four-acre lake, fed by groundwater and springs, is the only natural lake in the Presidio. It is located on the southern border of the Presidio adjacent to a residential neighborhood in San Francisco. A small portion of the lake and a sandy beach on its shore lie on San Francisco property and are part of a popular city park, Mountain Lake Park, which also contains a children's playground. The beach is frequented by San Franciscans of all ages, including children, who can often be seen playing in the sand and shallow water. A pathway that traverses riparian woodlands on Presidio property on the southeast, east and north sides of the lake is used by birdwatchers, walkers, hikers and joggers. On the west, the lake is bounded by State Highway 1, leading to the Golden Gate Bridge.



Aerial photograph of Mountain Lake area.
Source: Google Maps, with annotations added



Mountain Lake seen from the south at Mountain Lake Park

The lake is believed to have served at one time as a fresh water source for the Ohlone people. In 1776, an expedition led by Captain Juan Bautista de Anza and Father Pedro Font camped on the lake's shore on its way to establish a Spanish military garrison. In his diary, Font described the lake as "a fine lake or spring of very good water" and noted, "Here and near the lake there are yerba buena and so many lilies that I almost had them within my tent."

In the 20th century, the lake was stressed by several circumstances. It was used as a source of irrigation for the nearby Army golf course from the late 1890s until 1964. Sedimentation and leaves dropped by non-native eucalyptus trees around the lake contributed to eutrophication. Most significantly, the Highway 1 approach to the then-new Golden Gate Bridge was built over the western edge of the lake in 1939-1940. The construction sharply reduced both the size and the depth of the lake. The lake lost 40 percent of its original surface area. Soil excavated to build the highway was dumped into the lake, and that fill combined with later sedimentation decreased the depth of the lake from 30 feet to less than 10 feet by the 1990s.

Runoff from the highway polluted the lake sediment with lead, petroleum and other chemicals, but the extent of the contamination was not fully documented until 2000. In addition, an extensive dredging project to remove the contamination was delayed for more than a decade because of a dispute about which government agency was financially responsible for it.

Beginning in 1997 and continuing through 2014, Mountain Lake became a persistent concern of the RAB. During this time, we commented



Construction of Highway 1 through western portion of Mountain Lake in March 1940. Photo: SF Public Library archive

on several sets of sampling and planning documents; periodically asked for updates on the status of the project; organized a workshop; sought the help of federal, state and local legislators; and approved a resolution and letters urging action. We also sought to convey the concerns of local community groups, such as Friends of Mountain Lake Park and neighborhood organizations, to the Army and the Presidio Trust.

We believe the advocacy by RAB community members and the public supported and contributed to the strenuous and eventually successful efforts by the Trust, National Park Service and state regulatory agencies to bring about the cleanup. Two unexpected factors, however, played key roles in the story of Mountain Lake.

One factor was ecological research, unrelated to the remediation program, by a University of California graduate student that serendipitously uncovered the extent of the lead contamination in the lake bottom in 2000. The other was the way the Army wrote a permit in 1938 that allowed the California Department of Transportation to build Highway 1 next to the lake. The chronicle of the cleanup of Mountain Lake illustrates the complexity of the remediation process, as well the desirability of extensive testing.



View of State Highway 1 adjoining Mountain Lake in 2014

B. The Discovery of Lead Contamination

Initial tests of lake water and sediment by the Army in the early 1990s revealed issues only with bacterial contamination and low concentrations of pesticides. Although the extent of lead contamination of the sediment was not known at the time, public concern about pollution was indicated by the dismay caused in San Francisco by the death in May 1996 of a swan named Daisy. Daisy, one of a popular pair of swans that lived by the lake, was found to have perished from lead poisoning. A necropsy showed five times the amount of lead considered toxic in Daisy's liver. It was never clear, however, whether the cause was swallowing a lead fishing-line sinker or ingesting lead carried through the food chain from the sediment.

A little more than a year later, the other swan, named Myrtle, was also found to have serious lead poisoning. Myrtle was taken to the San Francisco Zoo in June 1997 for treatment of the lead poisoning and a respiratory infection and after several months of recuperation was moved to a waterfowl refuge in Sonoma County, which was deemed to be a safer location.

Several neighborhood residents, including Friends of Mountain Lake Park President Judy Whilt, and a teacher at a local school came to the January 14, 1997 RAB meeting to express concerns about contamination of Mountain Lake, ask for more information about the lead and other chemicals found, and urge a cleanup. RAB community members offered to hold a technical review committee workshop at which concerned neighbors and representatives of the Army, Trust, Park Service and regulatory agencies could review data on the lake.

The workshop meeting, chaired by RAB community member Julie Cheever, was held on January 29. About 20 representatives of neighborhood groups, the RAB, Army, Park Service and City of San Francisco attended and went over the results of the contamination testing conducted thus far. The data gathered at that time showed that while lead, heptachlor pesticide, cyanide and petroleum hydrocarbons had been found during sediment and water sampling, the amounts fell below regulatory levels that would require cleanup.

As described earlier in this report, the Presidio Trust was created by Congress in 1996 to manage the inland areas of the Presidio, and in 1999 it took over the environmental remediation program from the Army. In preparation for possible modification of the Army's cleanup plans, the Trust performed additional investigation sampling of the Mountain Lake sediment in 1998, using composite results from core samples, and tested the water in 2000. The results appeared to confirm there was no contamination of the sediment at levels requiring cleanup.

New concerns were raised in 2000, however, by sediment data from a study undertaken by Liam Reidy of the University of California at Berkeley, published in a 2001 master's thesis entitled "Evidence of Environmental Change Over the Last 2,000 Years at Mountain Lake, in the Northern San Francisco Peninsula, California." The study took 19-foot-deep core samples of lakebed sediment for the purpose of documenting the history of vegetation change over 2,000 years. It sought to identify the plant species present in various eras by analyzing the types of pollen deposited at the corresponding levels of sediment. The metals found in the core samples were also analyzed to aid in interpretation.

Unexpectedly, the metal analysis indicated that sediment dating from the 1940s through the 1990s contained much higher levels of lead and other heavy metals than previously thought. The data showed that lead in sediment increased markedly between 1940, when the Highway 1 artery opened to traffic, and the 1990s, when lead in gasoline was fully banned. As discussed in Chapter 7 and illustrated in the chart on page 121, the lead concentrations reached a peak in the mid-1970s, the era just before lead in gasoline began to be phased out. It turned out that the sediment samples taken previously by the Army and Trust had missed the lead contamination because they collected samples at regularly spaced intervals that were slightly above and slightly below the contaminated sediment layer.

The study results were reported to the RAB by the Trust at the board meeting of November 14, 2000. Starting with that meeting, Mountain Lake issues were discussed at RAB board and committee meetings every year until the RAB adjourned

in 2014. RAB community members followed and reviewed plans for more thorough sampling of the lake and for the cleanup. When an impasse arose over financial responsibility for the cleanup, we tried to find ways to present a community voice to urge an end to the delay.

The discovery of the contaminated sediment layer triggered a new investigation program at Mountain Lake. The Trust conducted more extensive sediment testing in 2001 with 15 ten-foot core samples from the bottom of the lake and three samples from the highway storm drains. Lead at levels above cleanup standards was found in the upper two feet of sediment in ten of the core samples, almost all at the western side of the lake, and in the three drains. A number of the sediment samples showed lead at levels ranging from 250 to over 1,000 mg/kg (or parts per million), compared with the 82 mg/kg concentration considered safe for aquatic life. The tests also found elevated zinc, which is used in automobile tires, and several other metals in the western part of the lake. The source of the contamination appeared to be highway runoff. Trace levels of pesticides were found at several locations; the Presidio Golf Course to the east of the lake was considered a possible source. Additional sampling in 2004 also found elevated levels of lead in shallow sediment, with a highest concentration of 1,200 mg/kg in one sample.



View of Mountain Lake Park and beach. Photo: Presidio Trust

C. The Long Road to Remediation

RAB members learned in 2001 that the Trust was formulating a remedy of dredging the contaminated sediment and diverting the runoff from highway storm drains away from the lake. The remedy was described in the Trust's Revised Main Installation Feasibility Study of 2003. Discussions began in 2002 among the Trust, Army, National Park Service, California Department of Toxic Substances Control (known as DTSC) and California Department of Transportation (known as Caltrans) on how to allocate responsibility for paying for the cleanup. The potentially responsible parties were Caltrans, as the agency that built and maintained Highway 1, the Trust and/or the Army. The discussions were expected to be a lengthy process and dredging could not begin until the financial responsibility was determined.

While this drawn-out process continued, the Trust went ahead with a separate Mountain Lake Enhancement Plan for improvements not related to contamination. These included removal of shoreline eucalyptus trees, which had dropped leaves contributing to eutrophication of the lake, and replanting the area with native plant species.



View from the south shore of Mountain Lake, following the removal of eucalyptus trees from the east shore and revegetation

Some of the enhancement projects overlapped with remediation plans, and a number of RAB members supported the projects as individuals or as members of other groups. As with other remediation plans, however, we were careful to restrict our formal work as a RAB on Mountain Lake to environmental cleanup matters. The reason for this approach was that we believed the RAB could be most effective if we focused our efforts on our official mandate.

RAB community members believed that because Mountain Lake was contaminated with lead and other pollutants from the state roadway, Caltrans should participate in the toxic cleanup as well as the diversion of storm drains discharging into the lake. After becoming concerned about the slow pace of interagency negotiations in assigning liability, the RAB community members passed a resolution expressing concern and urging action. It was unanimously approved by community members at the RAB meeting of October 14, 2003.

The resolution stated there was sufficient evidence to conclude that Mountain Lake had been contaminated and could continue to be contaminated because of its proximity to a major highway, and said remediation progress was jeopardized by lack of acceptance of cleanup responsibility. It asked the Trust to go ahead with preliminary design plans and budgets for the remediation of contaminated sediment. The resolution is shown on the following page.

At that same October 2003 meeting, the RAB welcomed an announcement by California Regional Water Quality Control Board project manager Jim Ponton stating that the Water Board had asked Caltrans for a formal meeting with the Trust and the National Park Service to discuss storm-water related issues concerning Mountain Lake. Despite efforts by those agencies and the DTSC, however, Caltrans continued to decline to take any active role in the remediation, possibly because of a concern about setting a precedent for storm-water-related liability throughout the state.

**Presidio of San Francisco Restoration Advisory Board
Community Members**

RESOLUTION

**Mountain Lake Cleanup and Restoration
October 2003**

Whereas the Presidio of San Francisco is a unique and magnificent national park with exceptional natural and cultural resources, situated in an urban setting;

Whereas Mountain Lake is a beautiful natural area within the Presidio, a site of keen public interest and recreational use, undergoing planning and design phases of toxic contamination cleanup and natural resource restoration;

Whereas there is sufficient evidence to conclude that there as been and may be future contamination of Mountain Lake due to its proximity to a major highway;

Whereas restoration progress is jeopardized due to variety of difficult challenges including acceptance of cleanup responsibility by clearly involved parties; and

Whereas parties concerned with the cleanup and restoration of Mountain Lake understand that the timing is right to move the project forward by finishing design plans and budgets, mobilizing public support, organizing government agency activity, and requesting supportive legislation from state government; now, therefore

Be it resolved that the community members of the Presidio Restoration Advisory Board (RAB) request that the Presidio Trust organize remediation and restoration teams to complete preliminary design plans and budgets for the Mountain Lake project within six months after the date of this resolution; and,

Be it further resolved that the community members of the Presidio RAB will, at the appropriate time in the near future, support timely actions by upper management officials and directors of government agencies concerned with the Presidio, to promote state legislation for the purpose of securing funding from responsible parties for the cleanup of Mountain Lake.

**Resolution approved by unanimous vote of RAB community members
at the RAB meeting of October 14, 2003**

In February 2004, RAB community members unanimously approved a letter requesting the aid of State Senator Joseph Dunn, who chaired a budget subcommittee, in securing cooperation and financial assistance from Caltrans in the environmental remediation.

In March 2004, the Presidio Trust began to proceed with preliminary design planning for the remediation even though funding had not been budgeted for this task by the Army or Caltrans. The Trust also started on the initial planning stages of a Remedial Action Plan to carry out the design. The Trust's environmental remediation manager hoped the complex design issues and the potential allocation of costs to non-Trust parties would be resolved by the time the plan was to be finalized at the end of 2005. But discussions with Caltrans continued for several more years to no avail. Proposals to Caltrans for a Transportation Enhancement Activities Program grant to pay for some of the costs were also unsuccessful.

As the impasse continued, RAB community members reached out to San Francisco Board of Supervisors member Michela Alioto-Pier in 2008 to convey their concern about the delay. Supervisor Alioto-Pier's district adjoined the southern boundary of the Presidio and Mountain Lake Park. On February 25, 2008, she convened a Land Use Committee hearing on Mountain Lake, which helped to focus public and political attention on the situation. The witnesses at the hearing included community member Doug Kern on behalf of the RAB and representatives of the Presidio Trust, Caltrans and Friends of Mountain Lake Park.

On the following March 4, the Board of Supervisors, acting on the recommendation of Supervisors Alioto-Pier and Jake McGoldrick, enacted a resolution urging the Presidio Trust and Caltrans "to immediately resolve the toxicity issue at Mountain Lake through further testing, cleanup and diversion measures."

Finally, in January 2009, after unsuccessful mediation attempts, the U.S. Department of Justice sued Caltrans in federal court on behalf of the Army and the Trust. A crucial event in the case occurred when the judge presiding over the lawsuit granted the Trust a summary judgment in February 2011 that concluded Caltrans was liable for the cleanup. The reason was that in the 1938 Army permit allowing Caltrans to build Highway 1 on federal land, Caltrans agreed it would be responsible for "any damage caused to property of the United States incident to the construction, operation or maintenance" of the roadway.

A few months later, in November 2011, Caltrans and the Department of Justice settled the lawsuit with Caltrans agreeing to pay an estimated \$13.5 million for the excavation of contaminated sediment and re-routing of storm drains and the lake overflow pipe.



San Francisco Board of Supervisors Land Use Committee hearing on Mountain Lake, February 25, 2008. Source: City of San Francisco, www.sfbos.org



RAB community member Doug Kern testifying at San Francisco Board of Supervisors hearing, with community members Julie Cheever and Jan Blum seated in audience. (Community member Peter O'Hara also shown in audience at far left of upper photo.) Source: City of San Francisco, www.sfbos.org



Dredging operation at Mountain Lake in 2013

The Mountain Lake cleanup was one of the most complex remediation projects carried out at the Presidio. The photograph above shows the setup of the dredging operation in Mountain Lake with access road, hydraulic dredge vessel, work boat and survey vessel. The contaminated sediment was dredged from the lake bottom, pumped through a pipeline to a treatment facility set up to the north of the lake, separated from the water, and hauled away for off-site disposal. The water drained from the sediment was treated and returned to the lake. After the Trust completed final plans, the dredging operation began in mid-2013 and was completed in early 2014, making it one of the last cleanup projects to be completed before the RAB adjournment.

Before the cleanup could proceed, Caltrans in 2012 stabilized Highway 1 by installing 400 stone columns inside the roadway embankment. The next step in the project was to excavate the pad for the treatment facility, which was slightly delayed when a buried historic wall was discovered and needed to be protected. A road was then constructed down to the lakeshore to allow access for the workers and equipment as well as an above-ground pipe that conveyed the pumped water and contaminated sediment to the treatment facility. At the facility, polymer was first added and the sediment was dewatered in large porous textile tubes stacked in layers for drying, shown in the background of the photo on the next page. The drained water was captured in tanks and treated in the filtration system shown in the foreground of the photo on the next page before discharge back to the lake. Contaminated sediment in the textile tubes was dried, loaded into trucks and transported to an off-site disposal facility.



Pathway along northeast shore and North Arm of Mountain Lake in 2013, with sediment transport pipe awaiting use for conveying dredged sediment to treatment facility

The finished excavation profile was established by previous sediment sampling during the design process. The dredge cleaned out the lake bottom by removing contaminated sediment to depths of about 5.5 feet in the deepest areas. The photograph shows the hydraulic dredge vessel used at Mountain Lake with an advanced positioning system that allowed the operator to dredge at a consistent depth and to the planned excavation limits.

Confirmation sediment sampling was used to confirm the finished lake bottom surface was free of contamination above project cleanup levels.

A small amount of contaminated sediment was left in place along the roadway embankment for stability purposes and covered with clean sand. The remediation project removed approximately 17,500 cubic yards of contaminated sediment from the lake bottom. As part of its separate Mountain Lake enhancement program, the Trust also reconfigured an additional 1,200 cubic yards of sediment within the lake in a process known as “benching” for the purpose of improving aquatic habitat. The lake bottom was then recontoured to a smooth surface for proper water circulation. All stakeholders agreed that the complex project, led by Trust environmental program manager Eileen Fanelli and project manager Genevieve Coyle, was well organized and professional.



Hydraulic dredge vessel in Mountain Lake.
Photo: Presidio Trust



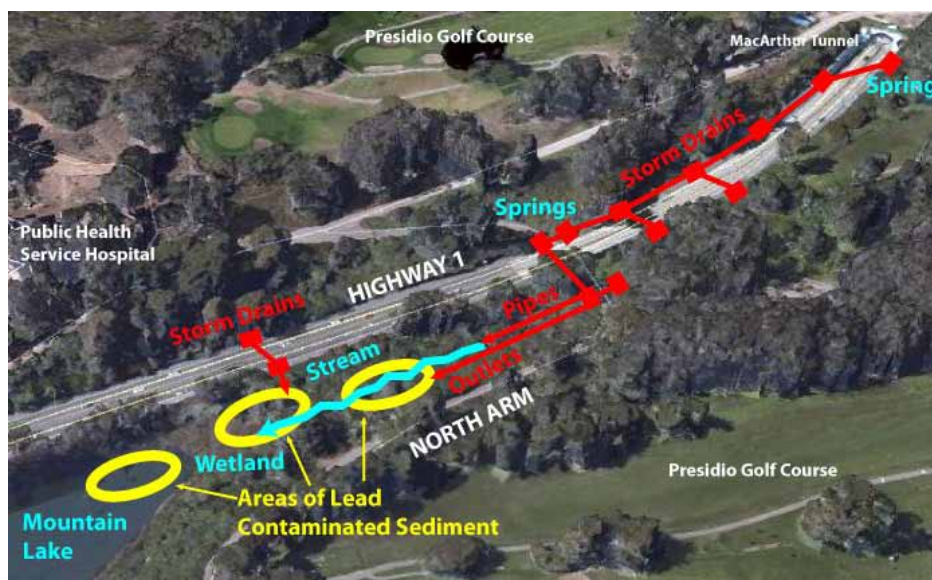
Temporary facility for dewatering of dredged lake sediment in large porous textile tubes (background) and treatment of the water (foreground) for return of clean water to the lake

D. The North Arm: A Parting Project

Unpredictably, there was one more turn of events in the Mountain Lake cleanup. This development was the discovery and eventual remediation of previously unknown lead and motor oil contamination in the lake's North Arm, a triangular section of water and wetlands in the northern tip of the lake adjacent to Highway 1. RAB community members' research, advocacy and outreach became one of their last public participation contributions before the RAB adjournment in 2014.

In 2012, RAB community co-chair Mark Youngkin observed that a large portion of the wetlands area in the North Arm of the lake and shoreline had not been sampled during previous investigations. A Caltrans as-built drawing prepared in about 1939 incorrectly showed the main storm drain in the North Arm discharging to open water in the lake. Because California DTSC jurisdiction starts at the end of the pipe outlet, one sediment sample was collected in the lake at the erroneous pipe outlet location; the sample was clean and no further action was required for the North Arm of the lake. No samples had been collected upstream of the erroneous pipe outlet location. Upon inquiry, Mark Youngkin learned that no one had ever found or observed the actual storm drain pipe outlet in the lake.

The suspect storm drain pipe ran underground through the North Arm of Mountain Lake in a bog containing dense thickets of downed tree trunks, blackberry thorns, poison oak and highway trash. It appeared that no one had recently inspected the area for evidence of storm water discharge on land. In early 2012, Mark Youngkin and Doug Kern climbed through the bog, discovered a small flowing stream and deduced that the water must be coming from a storm drain outlet and that the pipe must be carrying water from a fresh water source in addition to highway runoff.



Sketch map of North Arm showing locations of lead-contaminated sediment discharged onto wetlands from storm water pipe outlets. Source: Google Earth, with annotations added

Mark Youngkin submitted comments to the Trust, DTSC and Water Board, notifying them of the erroneous Caltrans as-built drawing and describing the potential for significant lead contamination of sediment in the North Arm.

The sketch map on the previous page shows the former configuration of the North Arm with pipes carrying storm and fresh water to the several outlets and areas of lead-contaminated sediment.

According to Mark Youngkin's research, the water came from a pipe that conveyed fresh spring water from around the MacArthur Tunnel on Highway 1 to the north. Springs at the nearby highway overpass were also joined to the pipe. In total, a steady flow of about 30 gallons per minute discharges into the North Arm stream, providing the lake over 40,000 gallons per day of fresh water. The flow appeared to be a significant source of water for the lake and wetland. A freshwater coastal stream is rare in San Francisco and a valuable resource for restoring wetland habitats.

RAB community members discussed the North Arm situation with the Trust, DTSC and Park Service staff at several RAB meetings during 2013. The RAB's Outreach Committee also arranged for RAB presentations to three neighborhood groups concerned with Mountain Lake: Friends of Mountain Lake Park, the Planning Association for the Richmond and Neighborhood Associations for Presidio Planning. Each of the groups wrote letters to the Trust asking for more investigation of the potential sediment contamination in the North Arm.

On the basis of the RAB members' observations of a flowing stream, the Trust and DTSC persuaded Caltrans to survey the storm drain pipe interiors with a mobile camera in 2012. The survey suggested two buried pipe outlets located 170 feet and 240 feet north of the lake shoreline. Probing and excavation by a Caltrans contractor finally revealed the pipe outlets, both buried in sediment and water within the overgrown wetland in the North Arm. One of the pipes was 232 feet long and was partially blocked by debris and sediment. The second pipe, which was 162 feet long, had been built above it, apparently as a replacement.

Sediment sampling by the Trust in February 2013 below the outlets on land and within the lake revealed areas of lead and motor oil contamination, both within the lake and on land. Areas of lead-contaminated sediment were found on land below the conduit



Previously unknown conduit outlet discovered in the North Arm. Photo: Conduit Abandonment at Mountain Lake in San Francisco, work plan prepared by WRECO for Caltrans, 2013



Excavator digging out lead-contaminated sediment from North Arm wetland

outfall and a roadside cross drain outlet. The sampling discovered concentrations of lead up to 3,200 mg/kg. Lead above the cleanup level of 82 mg/kg was found at depths from six inches to six feet below surface grade in the North Arm sediments.

Fortunately, the main dredging operation for the lake had not yet demobilized and the dredging equipment was still available to excavate the remaining contaminated sediment in Mountain Lake in the fall of 2013.

The excavation of contaminated sediment on land in the North Arm required a separate mobilization conducted in an expedited process. In late 2013 and early 2014, the Trust excavated approximately 2,000 cubic yards of lead-contaminated sediment from two areas below storm drain outlets within the North Arm wetland. In January 2014, the excavations were back-filled with sand and re-contoured for erosion protection and replanting. The contours of a new stream bed and restored wetland area were designed by the Trust's natural resources staff and the staff and volunteer park stewards began planting native plants in the area in February.



Volunteers planting at the North Arm of Mountain Lake on February 8, 2014, following contamination cleanup and restoration of the stream and wetland. Photo: Presidio Trust

Caltrans, meanwhile, decommissioned the lower abandoned storm drain pipe by capping the ends with a cement mixture to seal it, and then cleaned the still operating upper storm drain pipe. In the future, following the planned rerouting of the highway storm drains, the remaining pipe will carry only fresh water from springs and the MacArthur Tunnel to the restored wetland and lake.

The cleanup of Mountain Lake and the North Arm was celebrated in a Mountain Lake Planting Day and Celebration on February 8, 2014. The event was organized by the Presidio Trust in collaboration with the San Francisco Recreation and Parks Department, the Golden Gate National Parks Conservancy, the National Park Service and Friends of Mountain Lake Park.

The celebration was described as “the beginning of a new healthy chapter in the life of Mountain Lake” and was intended to mark the transition from remediation to restoration, which included the ongoing planting of native plants around the shore, the start of planting in the North Arm wetland and the future reintroduction of native aquatic plants and species in the lake. The event included a noontime ceremony and morning and afternoon planting sessions that launched the revegetation of the North Arm. Despite rainy weather, a total of 120 volunteers and Trust, city and Conservancy staff members planted more than 1,200 native plants, primarily in the North Arm.



RAB community members Jan Blum, Mark Youngkin and Julie Cheever, Friends of Mountain Lake Park President Rich Shrieve, and Presidio Trust Chief of Planning, Projects and Programs Michael Boland at Mountain Lake Celebration on February 8, 2014. Photo: charityvargas.com



Restored wetland at North Arm in February 2015, one year after planting by park volunteers



THE PRESIDIO OF SAN FRANCISCO RESTORATION ADVISORY BOARD



FINAL REPORT

Twenty Years of Public Participation 1994-2014
in the Environmental Cleanup of Our New National Park

Chapter 9 Tools for Effectiveness of a Community Group

A Restoration Advisory Board, or RAB, is a citizens' board that provides community advice to decision makers on the environmental cleanup of a military base and a forum for public discussion of remediation matters. Our RAB operated at the Presidio of San Francisco from 1994, the year the base was made into a national park, to 2014, when we voluntarily adjourned because the cleanup was essentially complete. We believe that during those two decades, our board was effective in advocating a more thorough and protective cleanup than might otherwise have occurred.

Previous chapters of this report have described some of the ways that RAB citizen members (known as community members) contributed to public participation and the cleanup. As described in Chapter 3, these contributions included document review, public outreach, independent research and participation in interagency working groups. Chapters 4 through 8 discussed RAB community members' specific contributions in the cleanups of Crissy Field, landfills, the Nike Missile Site, the Mustard Agent Site, lead-contaminated areas and Mountain Lake.

This chapter looks at a different type of topic. The subject is some of the internal operating procedures that we developed as a citizens' board and believe were important in aiding our effectiveness. We are including this chapter in case these procedures are of interest to other RABs or other citizens' groups engaged in a public process. We know that every citizens' board is unique in its own way and that other groups' experiences will not exactly match ours. Our intention is to offer some ideas and approaches that were helpful to us and may be useful for others to consider.

The six procedures described in this chapter are:

- a) Charter and Bylaws;
- b) Membership recruitment and selection;
- c) Use of committees;
- d) Formal board resolutions;
- e) Advocacy of an effective financial reporting system;
- f) Interagency summit meetings.

- RAB members developed the board's Charter and Bylaws in several stages between 1994 and 2003. In addition to establishing the procedures used by the board, the document was aimed at permitting constructive debate and supporting decision-making agencies in using a consensus-oriented approach in the development of cleanup plans.
- One of the provisions added to the Bylaws allowed community members to expand in number and select new members. Working through the RAB's membership committee, community members recruited and added valuable new members with expertise in areas needed to strengthen the effectiveness of the RAB.
- The Presidio RAB used committees extensively to support its work. These committees included standing committees, ad hoc committees and internal working groups. We learned that it was important to expect and allow for flexibility in the configuration of committees, because the needs of the RAB changed over time as the remediation progressed.
- We developed the use of formal resolutions, enacted by RAB community members at board meetings, at important junctures in the cleanup program for statements on issues of greatest concern or significance.
- In an era when cost can become a driving influence on the decision-making process, RAB community members sought to make sure that public health and environmental concerns remained at the forefront. When we became aware in the early 2000s that allocated cleanup funds were in danger of running short, we advocated the use of an expanded financial reporting system to address project management demands. We also advocated interagency summit meetings among high-level managers to find and resolve differences among agencies that arose in the mid-2000s.



Current conditions at restored stream and riparian corridor in upper Tennessee Hollow Watershed, following clean closure (excavation) of Army-era landfills in 2010

A. Charter and Bylaws

The development of a Charter and Bylaws that provided for efficient operation of the RAB and allowed constructive debate was a foundation of our RAB's effectiveness. This document was created and refined in several stages during the board's first nine years between 1994 and 2003. The 17-page final version, approved by the full RAB on October 14, 2003, is in the Appendix of this report.

As described in Chapter 2 of this report, the Presidio Restoration Advisory Board was created in 1994, the second year in which RABs were established at military bases pursuant to provisions of a presidential executive order, a federal law and U.S. Department of Defense policy. RABs eventually numbered more than 300 nationwide.

The purpose of the then-new RABs was to increase public participation in the cleanup process. In implementation guidelines developed in 1994, the Defense Department and U.S. Environmental Protection Agency said RABs "offer an opportunity for communities to provide input to the cleanup process," thereby "improving the soundness of government decisions, and ensuring cleanups are responsive to community needs."

At the Presidio RAB's first meeting on May 17, 1994, the Army provided a draft Charter and Bylaws. This draft incorporated some of the basic organizational features outlined in the guidance then being developed by the DoD and EPA. RAB members were a combination of citizens, known as community members, and agency representatives. RABs had two co-chairs: an agency co-chair representing the military branch in charge of the cleanup and a community co-chair elected by the citizen members.

The DoD and EPA guidance instructed RABs to develop their own organizational procedures. The procedures used by the Army at early meetings of the Presidio RAB in 1994 appeared, however, to limit discussion by community members. The Army representatives initially set the agendas and selected meeting facilitators and thus shaped the discussion.

There was also disagreement between Army and community members as to whether RAB community members could provide only individual advice, or whether they could submit group comments and advice if they wished to do so. This dispute was alleviated when Congress amended the law establishing RABs to specify that RABs are not subject to the requirements of the Federal Advisory Committee Act.

In 1994 and 1995, a Bylaws subcommittee led by community member Bennett Horenstein developed a series of proposed procedures for presentation to the full RAB. After discussion, the board approved a number of these procedures as Bylaws amendments. (Throughout the existence of the RAB, the approval of Bylaws amendments required a two-thirds vote of the full board, including both agency and community members.) Some of these items concerned membership rules, the definition of quorum, leaves of absence, and the roles of the two co-chairs. The amendments also specified which sectors of the RAB (e.g., both community and agency members

or community members alone) could vote on various types of motions and the kind of majority (simple or two-thirds) needed for approval.

Other provisions that allowed greater participation by community members and by the RAB as a whole were included in a restated Charter and Bylaws approved by the RAB on March 21, 1995. One item required that agendas would be set jointly by the military and community co-chairs working “in close coordination.”

Another item, of utmost importance, provided that RAB community members could convey their advice in a variety of forms, including group comments. As worded in the final version of the Charter section in 2003, this measure stated, “This advice may be communicated by individual members, groups of members or a consensus of members in a variety of formats, including comments either written or presented orally.”

A third important measure established that the RAB facilitator was selected by a majority of the full agency and community membership of the RAB. It also provided that a similar majority could determine the facilitator’s participation and voting rights. This provision meant that the RAB could select a community member to serve as an unpaid volunteer facilitator if the board determined that arrangement would be workable and appropriate in a particular case. As a Bylaws amendment, it formalized the position taken by the RAB in January 1995 when the board voted to select Doug Kern, a geophysicist who was also a professional mediator, as facilitator while allowing him to continue to serve as a community member.

Taken together, the amendments adopted in these first two years increased community members’ ability to discuss and obtain information on topics they considered important to carrying out their role. They also enabled community members to provide comments and advice in a variety of formats.

After the Presidio Trust took over the cleanup from the Army in 1999, the Charter and Bylaws had to be revised again to reflect that the Trust had become the lead agency. In addition, some provisions needed to be updated because the language was vague and unclear or for other reasons.

A new Bylaws Committee led by community member Julian Hultgren was formed to study the 1995 Charter and Bylaws and draft a new document that would accurately reflect the role of the Presidio Trust and grant appropriate rights and duties to the RAB members. The six-member committee met five times in 1999 and reviewed the 1995 document section by section. The committee then prepared drafts of a new Charter and Bylaws that were, in turn, reviewed and commented upon by RAB members and revised to incorporate those members’ suggestions. A draft was also reviewed by the Presidio Trust’s legal department, which asked for some minor changes.

The revised document was approved by the full RAB at the board meeting of January 11, 2000. Minor amendments were proposed in September 2003 and the final form of the Charter and Bylaws, as amended and restated, was adopted on October 14, 2003.

The final Charter and Bylaws was a creative document that established the RAB as a stakeholder partner in the ongoing cleanup program and supported the decision-making agencies in using a consensus-oriented approach to the development of remediation plans. The mission statement in the document's Charter section referred to the aim of consensus approach when it stated, in part:

The purpose of the Restoration Advisory Board is to create an open and interactive partnership through which communities, agencies and public stakeholders work to produce consensus decisions that restore the environment while incorporating the interests of the Trust as the Lead Agency as well as the needs of the local community.

The mission statement also reiterated previous language specifying that the RAB "facilitates the early and continued flow to the community of information necessary for responsible decision-making" and is intended to complement other community involvement efforts and not replace them.

To establish a mutually cooperative relationship among the participants, the Charter and Bylaws clearly set forth their respective duties and responsibilities. While the ultimate cleanup decisions rested with the Presidio Trust and regulatory agencies, the community members would be advised, in detail, of the Trust's proposals, could submit their comments and suggestions and, if they disagreed with a Trust decision, could meet with Trust representatives to discuss the planned action and seek revisions of it.

Community members were expected to serve at least one two-year term and were responsible for attending RAB meetings, reviewing documents, providing advice and comment on the cleanup effort, and reporting back regularly to their constituencies or organizations as well as the larger public.

The Charter section stated that "the examination of facts and findings is essential to giving sound advice." It said that the RAB would "review, evaluate and comment on environmental clean-up project reports, work plans, budgets, schedules and other documents." This provision enabled the RAB to be given information about budgets and schedules as well as technical data and documents as a basis for the task of providing advice on cleanup plans.

The Bylaws provided for 20 to 30 community members, or more if the Membership Committee recommended a larger number and a majority of community members approved an increase. New community members could be added by the vote of two-thirds of the community members and were subject to termination by action of the community members, acting alone.

Agency members were responsible for providing information about their agency's position on cleanup issues and making best efforts to ensure that community input was considered in cleanup decision-making. The Bylaws specified six agency members, representing the Presidio Trust, U.S. Army, National Park Service, U.S. Environment Protection Agency, California Department of Toxic Substances Control, and California Regional Water Quality Control Board. (The Army became inactive on

the RAB after 1999, however.) Other government agencies interested in the cleanup could apply for membership and join if approved by a two-thirds vote of the full RAB.

The community co-chair had the duties of presiding at meetings or delegating that task to a facilitator or the agency co-chair; serving as focal point for community outreach; acting as liaison between community members and the Presidio Trust and the regulatory agencies; and meeting and conferring with the agency co-chair when requested. The final 2003 version of the Bylaws additionally provided that the community co-chair would prepare meeting agendas, after receiving proposals from the agency co-chair and community members. This change increased the responsibility of the community co-chair, since the previous versions had stated that the two co-chairs would prepare agendas jointly.

The agency co-chair, now appointed by the Trust as the lead remediation agency, had the duties of providing the RAB with documents; maintaining a public information repository of all documents and information relating to the cleanup; arranging for technical support of the RAB; providing transcripts of RAB meetings; and meeting and conferring with the community co-chair when requested. The agency co-chair was also responsible for publicly announcing RAB meetings, publicly announcing the availability of documents for review and maintaining a mailing list of interested groups and individuals.

Other provisions of the final Charter and Bylaws clarified, updated and expanded procedures for election of officers, conflicts of interest, leaves of absence by members, termination for lack of regular attendance, and appeals of such actions. Although our RAB never needed them, the Bylaws included procedures for censure and termination of members in cases of severe disruption or Bylaws violations, and for recall of officers. The document established several standing committees and provided for the creation of special committees when needed, as described later in this chapter.

The resulting 2003 Charter and Bylaws established the independence of the RAB and created rights and duties that ensured the RAB would be informed of the cleanup plans, have the right to discuss them with the Trust and the other agency members, and given a fair opportunity to contribute to the progress of project.

We are proud of our Charter and Bylaws and understand it has been used as a model by other RABs and community groups.



Officers' Club in the Presidio, site of RAB meetings in the late 1990s

B. Membership Recruitment and Selection

The recruitment and selection of RAB community members was an essential element of public participation, and the procedures strengthening the community role in this effort were among the most effective changes made to the RAB Charter and Bylaws. During the two decades, a total of 82 citizens served on the board, providing an array of perspectives and expertise. A list of the community members and years served can be found at the end of Chapter 2 on pages 42 to 44.

The original two dozen RAB community members were selected in May 1994 by the Presidio's garrison commander at the time, Colonel Gregory Renn, from applications received through newspaper advertisements in the spring of 1994. The community members included three people who had served on the predecessor Technical Review Committee. A panel made up of representatives of the Army, National Park Service, U.S. EPA, California DTSC and one member of the public screened the applications and recommended the candidates to Colonel Renn.

In the initial selection, the Army emphasized obtaining representation of diverse segments of the community. At an informational meeting for prospective RAB members in April 1994, Colonel Frank Janeczek, the director of public works for the Presidio, told prospective members, "The RAB members are going to be representing those diverse community interests that we are all looking forward to incorporating into this body."

The Defense Department and EPA implementation guidelines for RABs stated the membership should reflect diverse community interests, but also noted that "each community has a unique mix of interests and concerns." The Army's selection criteria for the original community members included representation of civic organizations, environmental groups, neighborhood associations, local businesses, Presidio neighbors, ethnic and economic diversity, and technical experts such as engineers, architects and consultants.

When a new membership drive became needed in 1995 to replace community members lost to attrition, a selection committee of community members took the lead in screening applicants. This committee, led by LeeAnn Lahren, retained the original selection criteria but added some new ones after studying the needs of the RAB. The committee reported at the August 1995 RAB meeting that skills and backgrounds needed included communications and outreach expertise, knowledge of science including biology and toxicology, more ethnic and gender diversity, and representation from Bay Area counties outside San Francisco.

At the time, the Presidio RAB's Charter and Bylaws did not specify a limit on the number of community members. It said the number should be large enough to reflect the community's diversity, yet of a size "capable of fulfilling its responsibilities in a reasonably manageable way." A conflict arose when the selection committee recommended a slate of 12 new members in November 1995 after culling through the dozens of applications received. The Army's remediation manager sought to limit

the number of new members to six, in order to keep the total number of RAB community members at no more than 25. Eventually, the dispute was resolved when the agency representatives of the BRAC (Base Realignment and Closure) Cleanup Team approved the seating of the full slate of new community members.

When the Charter and Bylaws were updated after the Presidio Trust took over the cleanup program in 1999, the membership selection committee was changed to consist solely of community members. The revised Bylaws specified there would be between 20 and 30 community members and provided that the RAB could expand the number if the Membership Committee recommended an increase and a majority of community members approved. In practice, the RAB averaged 25 community members over the two decades.

The Membership Committee, now under the leadership of Jan Monaghan, assumed the responsibility of strategic planning for the needs of the RAB and screening applicants. As new membership drives became needed to replace members lost to attrition, the committee began adding to the selection criteria on the basis of the RAB's needs for technical expertise in areas such as accounting and finance, insurance policies and claims, construction project management and financial reporting, toxicology and risk assessment, and science.

Because of the high profile of the Presidio and the great public interest in the new national park, our RAB was fortunate in being able to attract and retain highly skilled members. Over the two decades, more than 500 people applied to serve on the RAB, with the largest number applying in the early years. While a degree of turnover enabled the RAB to acquire new members with new perspectives and skills, the board also had continuity from some members who remained on the RAB for a number of years. Twelve community members served for between ten and 20 years.



San Francisco Board of Supervisors commendation to RAB community members, November 18, 2014. Source: City of San Francisco, www.sfbos.org



RAB community member representatives Julie Cheever, Jan Monaghan, Mark Youngkin and Jane Bernard-Powers with San Francisco Supervisor Mark Farrell at Board of Supervisors commendation on November 18, 2014. Photo: Catherine Stefani

Membership in the RAB was primarily solicited during membership drives by advertisements in metropolitan newspapers such as the San Francisco Chronicle, the Oakland Tribune, and the San Jose Mercury News as well as neighborhood newspapers. Membership drives were conducted every one to two years in the early years of the RAB and thereafter every three to five years.

In addition, membership applications from people who were interested in serving were accepted and considered at any time. The application form was sent to anyone who made inquiries to either the Trust or the RAB and was also posted in the environmental remediation section of the Trust's website.

The application form was revised after the initial RAB was formed. Beyond the usual questions about education and work experience, we asked whether applicants used the Presidio for recreation or were residents, whether they had experience working with a multidisciplinary group and whether they were willing to serve for two years and regularly attend two meetings per month.

The committee screened the applications by circulating them among committee members for review and then interviewing candidates either by telephone or in person. The committee decided by a majority vote which applicants to recommend for membership. The candidates were then invited to attend a RAB meeting to introduce themselves as prospective members. The full community sector of the RAB voted on whether to approve the new members at the following RAB meeting.

C. Use of Committees

Our RAB used committees extensively and in a flexible way. We had both standing committees, such as the Membership and Bylaws Committees described above, and ad hoc committees created as the need arose. All committees were open to all community RAB members. Individual members could serve on more than one committee if they wished. In part because the Membership Committee had worked hard to bring diverse skills to the RAB, our committees generally each had enough volunteer members to accomplish their work.

The various versions of the RAB Charter and Bylaws each specified several standing committees and also provided that the RAB could create additional special or ad hoc committees as required. The flexibility to create new committees proved to be important, because the needs for committees evolved and changed over the life of the RAB.

The 1995 Charter and Bylaws provided for five committees: an Organization Committee (which at the time included bylaws and membership subcommittees); an Outreach and Education Committee; and three committees to review documents and reports for each of the three remediation programs (hazardous substance sites in the Main Installation, petroleum oil pipelines and storage tanks, and lead and asbestos contamination).

These committees reported regularly to the full RAB at board meetings. The work of the petroleum program committee (then called the Underground Storage Tanks Committee), led by community member Harold Ball, and the Main Installation Committee, led by community member Jan Baxter, was especially important to the RAB in its first two years. The Army's petroleum cleanup program was under way at the time and the complex Main Installation Feasibility Study of more than 60 sites, including landfills, was being launched.

The 2000 and 2003 Charter and Bylaws partially changed the alignment of committees to reflect changes in the needs of the RAB.

The Membership Committee and the Bylaws Committee, also known as the Rules Committee, were made into separate entities instead of being subcommittees of an Organization Committee. Because the organization of the RAB was well established by then, an Organization Committee per se was no longer necessary. The other committees specified in the 2000 revision were a Planning Committee; a Restoration and Compliance Committee; and an Outreach and Education Committee. Special committees and working groups could be created by a vote of a majority of RAB community members at any time.

The Planning Committee was an innovative institution that evolved during the early years of the RAB and remained active until 2011. It reviewed plans and documents for all three remediation programs and thus replaced the three program-specific committees established in 1995.

During the RAB's first two years, community members experimented with a variety of committee formats and meeting times. Between mid-1994 and mid-1995, the RAB met nearly twice each month in formal board meetings, in addition to holding separate committee meetings at other times, as the new community members got up to speed on the complex remediation process. Needless to say, this schedule was very demanding and required a deep commitment to public service. In the fall of 1995, the RAB moved to having one formal board meeting per month, on the second Tuesday evening, and informal workshops on particular topics on the fourth Tuesday.

The following year, the fourth-Tuesday sessions evolved into a single large-group committee meeting, attended by both community and agency members. Beginning in 1997, the committee was called the Planning Committee and was headed by



Removal of abandoned underground storage tank
Photo: Presidio Trust

community co-chair Mark Youngkin. It functioned like a committee of the whole. Representatives of the Trust and National Park Service, and, for most of the committee's existence, the state DTSC, regularly attended the sessions. The meetings were a valuable way for community members to have technical questions answered and discuss a range of remediation issues with agency representatives in a less formal setting than the monthly RAB meetings.

The Planning Committee meetings continued nearly every month for 14 years until the spring of 2011, when they were discontinued as the cleanup program began winding down and the monthly board meetings seemed to be an adequate forum for discussing the remaining remediation plans. In the meantime, throughout the existence of the RAB, the standing committees and special committees met or were activated whenever needed.

The standing Bylaws and Membership Committees were discussed above. Another standing committee, the Outreach Committee, led by Julie Cheever and Doug Kern, arranged presentations by RAB community members to neighborhood and civic groups. As described in Chapter 3 of this report, the committee also organized the articles contributed by community members to the Army and Presidio Trust environmental newsletters between 1996 and 2003, and prepared fact sheets on contamination sites in 1998 and 1999.

The four internal working groups created by RAB community members in 1999 to study approximately 40 CERCLA Cleanup Program sites were a type of special committee. As was described in Chapter 5, these sites remained in a group known as the Main Installation after the cleanup of Crissy Field was completed in 1999. They included most of the Presidio landfills and were located throughout the park. The sites were being considered in the Revised Feasibility Study then under preparation by the Presidio Trust. To aid in reviewing this large number of sites, each working group studied reports and plans in a particular quadrant of the Presidio. The groups reported on their research to the full RAB and drafted comments for inclusion in RAB comment letters on the revised study, which was completed in 2003.

An important special committee, and one that was not envisioned when the RAB was being organized in 1994 and 1995, was the Financial Reporting Committee formed in 2002. As is described later in this chapter, this committee, led by community member David Sutter, studied cost tracking of the cleanup projects and offered recommendations for a more comprehensive financial reporting system.



RAB members at potluck picnic at Fort Mason community garden before RAB meeting in 1998

We also had an informal social committee, led by Tracy Wright and Jan Blum. It organized occasional picnic get-togethers before summertime RAB meetings and holiday refreshments at some of the December RAB meetings.

The last committee established by the RAB was the six-member Final Report Committee, headed by Mark Youngkin and Julie Cheever, which planned and created this report. Drafts of the report were reviewed by both the committee and full community membership of the RAB.

D. Formal Board Resolutions

RAB community members had a number of avenues for commenting on remediation documents and issues, including statements made during RAB meetings, individual and group comment letters during public comment periods, and advisory letters. We reserved some of our strongest statements, however, for formal resolutions.

In our view, a joint resolution passed by community members carried the greatest weight in public opinion and was the most effective at gaining attention from stakeholders and the public at large. Community members of our RAB resorted to the use of resolutions judiciously and only in cases of the most serious concerns or important junctures in cleanup matters. We believe the careful use of formal resolutions was an important tool in public participation and community advocacy at the Presidio.

Our RAB enacted a total of 10 resolutions between 1997 and 2014. The resolutions were typically about one page long and were circulated in written form in advance of the meeting at which they were approved. To achieve as much consensus as possible, the resolutions were usually discussed and refined during at least one formal board meeting as well as Planning Committee meetings before the session at which they were offered for a vote. Thus, the process of developing a resolution was in itself was a way of presenting community concerns and bringing agency members' attention to them.

Coast Guard Station Resolution. The first RAB resolution by community members in 1997 concerned the former U.S. Coast Guard Station at the western end of Crissy Field. As discussed in Chapter 4, the Crissy Field restoration project was the first large project by the National Park Service and Golden Gate National Parks Conservancy, and planning for it was under way in 1997. The station, which the Coast Guard left in 1990, formerly used four underground petroleum and waste-oil storage tanks. Although the Coast Guard removed the tanks in 1995, preliminary sampling indicated that residual waste oil containing lead and chemicals regulated by the DTSC might have leaked into the soil and groundwater. Further investigation and, if warranted, possible remedial actions were needed.

By early 1997, stakeholders and community members worried that the Coast Guard would not be financially able to meet its obligation to clean up the former

station in time for the scheduled start of the Crissy Field restoration in 1999. The situation appeared to be at an impasse: the Coast Guard said it might not have funding for the work for several more years and the Army declined to carry out the work and seek reimbursement later. To emphasize our deep concern over the lack of progress and assist in urgent outreach to the larger public, RAB community members passed a group resolution at the January 14, 1997 board meeting to urge immediate action.

This first resolution, proposed by community member and former RAB co-chair Robert Reinhard, was one sentence long and was enacted, after discussion, at the same meeting at which it was proposed. It stated:

The advice of the Restoration Advisory Board is to recommend that the Army take immediate steps to commence and take responsibility of cleanup and perform the cleanup of the former Coast Guard Station.

As a follow-up to the resolution, in March 1997, the community members submitted a letter to the Office of the Under Secretary of Defense asking for an immediate solution, and sent copies of the letter to high-level managers at the Army's Fort Lewis Garrison and the Coast Guard and to congressional representatives. In 1998, the Coast Guard conducted the additional groundwater testing ordered by the DTSC, and it was determined that further remediation was not needed.



Historic Presidio Coast Guard Station at the Presidio's restored Crissy Field

Landfill Closure Resolution. In May 1997, the Landfill Closure Resolution became the second resolution passed by RAB community members. The resolution and accompanying set of Landfill Closure Principles can be found in the discussion of landfills in Chapter 5 on page 85.

The Landfill Closure Resolution proved to be one of the most important resolutions enacted by the RAB. At the time, the Army was preparing a Feasibility Study that proposed leaving the abandoned landfills and other hazardous substance sites in a grouping called the Main Installation largely in place, in some cases with soil covers and/or land use restrictions. The resolution, proposed by community member Doug Kern, endorsed the full excavation of contamination in landfills (a remedy known as “clean closure”) with few exceptions.

The resolution stated that the Army's presumptive remedy of landfill containment in place should not preclude consideration of removing landfills by clean closure. It outlined various reasons why clean closure was, in the view of the RAB, in the best interest of the community and national park. These reasons included saving on long-term operation, maintenance and monitoring costs; preventing the leaching of contaminants into groundwater and surface streams; restoration of precious open space for future recreational or habitat use more suitable for the new national park; and the need for community acceptance of a remedy. As was noted in earlier chapters of this report, community acceptance was an important factor because it is one of nine criteria that regulators are required by federal law to consider when approving cleanup remedies.

The resolution and principles were circulated among community members and discussed and refined at the April 1997 RAB board and a Planning Committee meetings. They were approved by a 17-2 vote of community members on May 13, 1997.

Community members used the concepts as a basis for parts of a 10-page RAB comment letter submitted on the Army's Feasibility Study on Sept. 10, 1997, and attached the resolution as an appendix. We also drew on the concepts in presentations to civic organizations and in comment letters in later stages of the cleanup process.

The comment period, ending in September 1997, on the Army's proposed Feasibility Study, drew a record number of more than 50 comment letters from agencies, organizations and individuals. Almost all advocated a more thorough cleanup and substantial revisions to the Army's plan.



Site of former Landfill 2 and new section of Mountain Lake Trail in upper Tennessee Hollow Watershed during restoration in 2011

Army Proposed Process and Schedule Resolution. During late 1997 and into 1998, progress on the cleanup planning at Main Installation sites appeared to be stalled. In August 1998, community members passed a resolution entitled "Army Proposed Process and Schedule for Feasibility Study/Remedial Action Plan." It requested that the Army resume meaningful discussions with stakeholders and regulatory agencies to move forward on Main Installation remedies.

As is described in Chapter 1, the Presidio Trust took over the cleanup from the Army in 1999 and subsequently revised the Feasibility Study and proposed more protective remedies. The revised document, completed in 2003, resulted in the clean closure of 11 large landfills, in addition to a landfill previously removed at Crissy Field, and the partial excavation of several others.



Recent view of restored Crissy Field following environmental cleanup in 1998-1999

Building 637 Working Group Process Resolution. In 1996, the Army had proceeded with the cleanup of Crissy Field on a separate track to accommodate the high-priority project of the National Park Service and Golden Gate National Parks Conservancy to restore the area along the shore of San Francisco Bay to parkland. The cleanup, described in Chapter 4 of this report, was essentially completed in 1999. It made possible the on-time completion in 2001 of the Park Service's and Conservancy's restoration of dunes, a marsh, a grassy field at the site of a former military airfield and a popular pedestrian promenade with spectacular views.

Between 1996 and 1998, community members of the RAB were invited to join Army and agency representatives in several working groups that developed plans for the cleanup of extensive petroleum spills and other contamination at various sites at Crissy Field. After assuming responsibility for environmental remediation in May 1999, the Presidio Trust continued the working group process, with the inclusion of RAB representatives, for one remaining large site at Crissy Field. This site, known as Building 637, was a former complex of gasoline and diesel fueling stations and motor vehicle maintenance facilities.

A fast-track cleanup of the site was needed to protect the future restored marsh and tidal lagoon from petroleum contamination and allow construction activities to proceed on time. Operating on an unusually speedy schedule, the working group completed the plan in two months and the cleanup was finished in October 1999.

In response to the success of this effort, RAB community members approved a resolution entitled "Public Participation, Building 637 Working Group Process," at the September 14, 1999 board meeting. The resolution commended the Trust for the working group approach and urged continued collaboration with the RAB as a participant.

Mountain Lake Resolution. In October 2003, a RAB resolution entitled “Mountain Lake Cleanup and Restoration” reflected deep public concern about the removal of lead contamination in the lakebed sediment. The text of this resolution is given in the discussion of Mountain Lake in Chapter 8 on page 141. As is described in that chapter, the lead contamination had been found to result from storm water run-off of leaded gasoline exhaust on state Highway 1, which the California Department of Transportation had built over the western end of the lake in 1939 as a major artery leading to the Golden Gate Bridge.

As of 2003, negotiations among the Trust, Caltrans and the Army about who should pay for the cleanup had reached an impasse. The four-acre lake is adjacent to a popular city park, called Mountain Lake Park, and members of the RAB, neighborhood groups and the larger public were dismayed by the delay in the cleanup. The resolution urged the Trust, regulatory agencies and Caltrans to resolve the impasse in cleanup responsibility and requested that the Trust complete preliminary design plans for addressing the contamination.

While awaiting a solution of the dispute, the Trust went ahead with preparing the design plans. Eventually, the dredging of contaminated sediment was completed and the lake was restored in early 2014 following the settlement in 2011 of a lawsuit the U.S. Department of Justice filed against Caltrans on behalf of the Trust and Army in 2009.



Dredging of lead-contaminated sediment from Mountain Lake in 2013

Mustard Gas Investigation Resolution. A July 12, 2005 resolution concerned the 2002 discovery of four small glass vials containing dried mustard gas agent by park volunteers working in a grassland area near Inspiration Point in the Presidio. The bottles were later determined to have been used in chemical warfare decontamination training kits sometime between the 1930s and 1950s. The vials were found in a forgotten World War I-era trench warfare training area. The Army, which retained continued responsibility for any chemical warfare agents that might be found at the Presidio, fenced off the area while conducting a national archive search to determine whether other such materials had been used at the base in the past. The results of the archive search were to be used to plan an investigation and remediation, if needed.

Because of a delay in Army funding, the investigation had not begun by 2005 and the grassland area, a redwood grove and a popular hiking trail remained fenced off and closed to the public. The resolution urged the Army and/or Presidio Trust to proceed immediately with the investigation. It also expressed concern over the Army's proposal for only limited investigation at other historical warfare training grounds identified at the Presidio in the Army's 2003 Archive Search Report. As is described in Chapter 6, the Army prepared a work plan in March 2006 and completed the investigation in 2007, after which the area was reopened to the public.



Discovery area of mustard agent bottles at the Presidio's Inspiration Point

Summit Meeting Resolution. A resolution entitled "Summit Meeting," which was unanimously approved on Feb. 14, 2006, resulted from community members' concerns over potential shortfalls in remediation funds and a slow pace of remediation project progress caused by differences among the Trust, the Park Service and regulatory agencies on issues such as applicable cleanup standards.

The resolution formally proposed that the Presidio Trust sponsor interagency working group meetings for senior management from all agencies to sit down together and hash out their differences in a neutral setting. Summit meetings, in which RAB community members facilitated and participated, were held over the next two and one-half years and in our view contributed to the successful outcome of the remediation program. The final section of this chapter describes the meetings and gives the text of the resolution on page 171.

Resolution of Adjournment and Commendation of Agencies. The last resolution enacted by RAB community members was entitled "Commendation to Agencies for the Cleanup of Presidio of San Francisco." It was unanimously approved at the final RAB meeting of April 8, 2014, at which community members voted to adjourn following the successful completion of the Presidio remediation program. The resolution stated the reasons for the RAB's adjournment and commended the government agencies and their project managers for their diligence and dedication in carrying out the complex program. Its text is given at the end of Chapter 10 on page 191.

E. Advocacy of Financial Reporting System

As was described in Chapter 1, the Presidio Trust took over the completion of most of the environmental cleanup from the Army under an innovative interagency agreement in 1999. The agreement provided a one-time payment of \$100 million, later discounted to \$99 million because of early payment, for completing the remediation of known contamination sites in the petroleum, hazardous substances and lead-based paint in soil cleanup programs. (The Army remains responsible for unknown contamination in previously unidentified sites, unexploded ordnance (UXO) and biological, chemical and radiological warfare agents that may be discovered.)

Eventually, however, the cost of completing the three programs amounted to nearly \$173 million by 2014. The figure on page 169 and the discussion in the remainder of this chapter explain that this cost was ultimately paid by a combination of the original \$99 million from the Army, \$19 million in interest, claims on the insurance policies, claims to the Army, a lawsuit settlement and the Trust's assumption of administrative costs.

But before all these elements fell into place, the financial situation of the remediation program became a matter of serious concern in the early 2000s. At that point, it began to be apparent that the allocated funds might not be sufficient for the proposed remediation. The Trust had previously expressed a preference for clean closure, as opposed to containment, of contaminated landfills and other sites when practical and consistent with land reuse plans. RAB community members and members of the public became concerned, however, that the impending financial shortfall could cause the Trust to try to reduce costs for some sites by adopting a containment and/or land use control scenario similar to that historically proposed by the Army.

In 2002, RAB community members began advocating an expanded financial reporting system to address project management goals. Over a period of several years, we used RAB meetings and the work of a RAB committee to discuss our concerns and offer suggestions for a more comprehensive system. We believe our sustained focus and advocacy on financial concerns contributed to the successful outcome of the cleanup program.

The concept underlying our efforts was that because public money was being used to fund the cleanup program, the public was entitled to know how the money was being spent. Although the particular circumstances of other citizen boards with oversight or advisory responsibilities may vary, we believe the concept is the same.

The RAB's prior experience at developing new bylaws aided this endeavor in several ways. By allowing community members to review cleanup budget information, which was traditionally not a part of RAB duties, and fostering a consensus-oriented approach to decision-making, the structure established for the RAB enabled community members to work cooperatively with the Presidio Trust in identifying and discussing areas for improvement. The ability of community members to recruit and select new members with expertise in business and finance also supported the RAB effort to advocate an innovative and comprehensive financial reporting system.

Although RAB community members began inquiring about cleanup budgeting in 1994, the Army provided minimal financial reporting to the public and the RAB during its management of the Presidio's environmental remediation program from 1994 to 1999. In addition, the Defense Department's national cleanup budget for implementing remediation projects varied from year to year, so that it could not always be predicted when a particular project at the Presidio would be carried out.

The Presidio may be a unique case among military base closures in that the \$99 million allocated in 1999 was a lump sum intended for completion of the cleanup with no expectation of future federal funding if cost overruns occurred. As part of its agreement with the Army, the Trust purchased two insurance policies from the Zurich Insurance Company for about \$7 million. The first of these, known as the Remediation Stop Loss or RSL policy, provided coverage for possible cost overruns exceeding the \$100 million cost forecast in 1999 for the remediation of known sites. The second, known as the Real Estate Environmental Liability or REEL policy, covered unknown contamination that might be discovered at existing sites.

In 2001, as concern about a potential shortfall grew, community members began raising project budgeting and scheduling as a discussion item at RAB meetings. In 2002, the RAB learned that the in-house project tracking system and software for the remediation program did not routinely generate expenditures by specific project sites. There was little site-specific cost or scheduling data for RAB community and agency members to analyze and discuss at meetings.

A related concern was that accurate tracking of cleanup expenses would be important if it were to become necessary for the Trust to submit cost overrun claims to Zurich Insurance Company. The two insurance policies were set to expire on May 23, 2014, which meant that the remediation program had to reach \$100 million in costs deemed "allowable" under the stop-loss policy before that date in order to receive cost overrun reimbursements.

RAB community members learned during board meeting discussions that the stop-loss policy did not permit the Trust's in-house costs to be counted as allowable expenses. These unallowable costs included both the Trust's administration of the program and any use of Trust staff to plan and implement cleanup projects. This factor caused the Trust to use outside consultants and contractors for development and implementation of most of the remediation plans and reports.

RAB community members believed a more comprehensive reporting system was needed to address the urgent financial situation. Even though it might not be possible to control certain expenses, a more comprehensive system would show in detail how and why the money was spent and where costs savings might be found.

As a result of its concerns, the community sector of the RAB added new members with expertise and business experience in accounting, insurance, construction-management and financial reporting in the fall of 2001 and the spring of 2002. The community members formed a new committee, known as the Financial Reporting Committee, which was led by David Sutter.

In 2002, the committee began making recommendations for a more comprehensive cost-tracking system based on a scheduling technique known as “critical path method.” Over the next several years, it continued reviewing financial reporting plans developed by the Trust. The committee presented its recommendations to the full RAB at RAB board meetings and at the less formal Planning Committee meetings. At the board meetings of July 8, 2003, and August 9, 2005, RAB community members voted to send letters to Trust management summarizing community members’ concerns and recommendations for cost reporting procedures.

During this process, both the RAB community members and the Trust’s remediation program manager proposed a strategy to the Trust management to improve project cost accounting and streamline project scheduling. The RAB’s suggestions included a request that the Trust present quarterly reports showing the estimated budget in comparison with outlays to date for each remediation site, with the costs for each site broken down to show in-house and contractor expenses for engineering and construction. Community members also urged that the remediation program should add a full-time financial analyst to its staff.

The purpose of the recommendations was to aid in accurately reporting and tracking expenditures in comparison with the planned budget and identifying cost variances and overruns in a timely way. It was hoped that the more precise information would help to ensure that either the remediation would be completed with the remaining Army funds or that insurance claims might be successful.

In mid-2002, the Trust began migrating to the use of a more comprehensive database-centered accounting system for the remediation program, a process that took several years to complete. A full-time financial analyst for the program was hired in 2004. In 2005, the remediation program manager began providing quarterly financial reports to RAB agency and community members, which were continued through the completion of the remediation program in 2014.

In the view of the RAB, the new reporting system, as shown in the quarterly reports, evolved into a sophisticated state-of-the-art budgeting method. The quarterly reports documented the amount spent to date, the estimated cost at completion and any changes in the forecasted budget for each of the dozens of remediation sites.



View of California Coastal Trail in 2014 within restored natural habitat at site of former Army-era landfill removed by clean closure in 2004

On a larger scale, the reports provided budget summaries for each of the three remediation categories – CERCLA hazardous substances, lead-based paint in soil, and petroleum – and for the remediation program as a whole.

The data could be easily geared to show which sites incurred the greatest expenditure in each quarter and where the greatest variance from estimated budgets had occurred. At the request of community members, the Trust's environmental program manager included information on the six sites with greatest variances and those with largest expenditures for the past three months when presenting the quarterly reports at RAB meetings. The quarterly reports also contained schedules for planning documents, construction and post-remediation summary reports for each site. The detailed cost and schedule information proved to be invaluable for RAB community and agency members' discussion and review of cleanup budgets.

TABLE 1
PRESIDIO OF SAN FRANCISCO
REMEDIATION DEPARTMENT PROGRAM

Program Overview	
	Capital Cost
Current Budget estimate	\$ 172,935,807
Original Army advance	\$ 99,000,000
Remaining costs	\$ 73,935,807
Off-sets – Total Interest earned	\$ 19,257,741
Off-sets – Claims received to date	\$ 38,801,393
Off-sets – Other Funds	\$ 2,457,246
Remaining costs*	\$ 13,419,428

* Subject to claims to the Army and Zurich coverage under the RSL and/or REEL Policy, and additional Trust funding.

Example of quarterly financial reports presented at RAB meetings: excerpt showing summary table of remediation program expenses in first quarterly report for 2014

By 2006, the financial reporting had made important progress, but it was becoming clear that the \$99 million left behind by the Army, even with interest earned, was not sufficient to pay for the projected total cost of the remediation program. This situation was one of the reasons for convening the interagency summit meetings described in the next section of this chapter.

During the course of these meetings, stakeholders and managers were able to analyze financial data closely because of the new reporting system. They concluded that the cost overruns were due to a combination of several factors. These factors were a growth in project scope at a number of sites because of a greater extent and degree of contamination than had been estimated; the high cost of outside consultant engineering and planning services that were in effect made necessary under the stop-loss insurance policy; the substantial expense of annual groundwater monitoring programs; and the cost of regulatory oversight under the 1999 Consent Agreement with the state Department of Toxic Substances Control. The remediation staff began formulating plans to address these problems by reducing the scope of groundwater monitoring and streamlining regulatory oversight and the use of consultants.

The improved financial reporting system also aided in documenting the costs that the Trust considered allowable for known contamination sites under the Remediation Stop Loss policy. Although cleanup spending had not yet reached the

\$100 million that would trigger payments under the policy, the Trust had been submitting regular reports on its accrued costs to Zurich Insurance Company since 1999 as a foundation for possible future claims. Some of these costs had been denied by Zurich as being unallowable, however. The Trust had additionally submitted several claims under the second policy, the Real Estate Environmental Liability policy, for cleanup of contamination that was unknown as of 1999. Zurich had paid some claims under the REEL policy but denied others.

Eventually, in the wake of the denials of costs and claims, the U.S. Department of Justice sued Zurich Insurance Company in federal court on behalf of the Trust on November 3, 2008, for reimbursement under the REEL policy of cleanup costs for previously unknown contaminated sediment in Mountain Lake and pollution of soil at the former motor vehicle maintenance site at Building 937 at Crissy Field. The lawsuit also included a legal claim that the insurance company had acted in bad faith in interpreting both the RSL and REEL policies unreasonably to bar coverage.

The lawsuit ended in a confidential settlement in February 2011. While the terms of the settlement were not made public, the Trust was subsequently able to obtain much-needed reimbursement for a number of claims under both policies and complete the cleanup of the Presidio before the policies expired in 2014.

F. Interagency Summit Meetings

A related procedure used by our RAB was the advocacy of management-level interagency meetings known as summit meetings between 2006 and 2009. These gatherings were similar in concept to the earlier interagency working groups used for Crissy Field sites and the remedial project manager meetings described in Chapters 3 and 4. RAB community members had participated in these earlier meetings at the invitation of the agencies. In the case of the summit meetings, however, RAB community members took the initiative in suggesting the forum and played a substantial role in developing the agendas and facilitating the meetings.

In 2006, the cleanup program appeared to be slowing down. One reason was the emerging financial shortfall and looming deadline in insurance policy coverage. A second factor was differences in approaches and views among the Trust, the National Park Service and regulatory agencies on issues such as the applicable cleanup standards and how to respond to the financial challenges. Progress on remedial action plans for various cleanup sites appeared to be slowed or stalled. Community members feared the Trust might be changing course from its previous preference for clean closure of landfills, as opposed to containing and capping contamination in place.

In response, RAB community members developed the idea of an interagency meeting to foster communication among stakeholders in a working group forum based on the positive experiences of Crissy Field working groups in the late 1990s. The idea was initially suggested at a meeting held by Trust Executive Director Craig Middleton and other managers with three RAB community members in October 2005 to follow up on the RAB's letter of the previous August on financial concerns.

**Presidio of San Francisco
Restoration Advisory Board**

RESOLUTION

Summit Meeting

February 2006

Whereas the Presidio of San Francisco is a unique and magnificent national park with exceptional natural and cultural resources, highly valued by millions of visitors annually;

Whereas the Presidio Trust has been the lead agency for the remediation of the Presidio since 1999 and for that purpose has received \$99 million from the Army to complete the program, the interest on which is more than \$11 million to date and is expected ultimately to exceed \$18 million;

Whereas the Presidio Restoration Advisory Board (RAB) community members appreciate the extensive efforts and accomplishments by the Presidio Trust to manage the program, by the National Park Service to participate comprehensively, and by the regulatory agencies to provide steadfast oversight and review;

Whereas community members are informed that, based on remediation program outlays to date of about \$45 million, remaining funds, including interest, are no longer adequate to complete the program as budgeted, and that no reasonable alternatives for additional funding have thus far been identified;

Whereas all parties involved in the remediation program including the Presidio Trust, National Park Service, the California Department of Toxic Substances Control, the San Francisco Water Quality Control Board and the Presidio RAB have similar goals to remediate the Presidio within budget and within a reasonable time frame; and

Whereas the remediation program is in jeopardy of not fully accomplishing its stated goals within budget and with a reasonable time frame.

Be it resolved that the community members of the Presidio RAB recommend that a high-level meeting be convened by the Presidio Trust to engage Presidio stakeholders – the National Park Service, the Presidio Trust, the regulatory agencies, and the Presidio RAB – in a concerted dialogue with appropriate written reporting to assess current processes and procedures of the Presidio remediation program (e.g., budgets, schedules, priorities, review processes, expenditure patterns and screening process for alternative remedies) with a goal to streamline the overall procedure and correct or eliminate procedural weaknesses (e.g., unnecessary delays, duplication of effort), so that effective use of the remaining funds will realize mutually shared goals.

Be it further resolved that the community members of the Presidio RAB maintain that the Park must be fully remediated, that we believe solutions exist to accomplish a comprehensive remediation within the available funds and that we believe that our mutual goals can be achieved through open-mindedness, creativity and cooperation among all the parties.

**Resolution approved by a unanimous vote of RAB community members
at the RAB meeting of February 14, 2006.**

The management supported the idea of a summit meeting and offered to convene such an event.

In committee and board meetings during the next several months, RAB community members developed a resolution that formally proposed a summit meeting to increase dialogue among stakeholders with the goal of streamlining procedures and the effective use of funds. The resolution also reiterated that community members continued to support a full remediation of contamination at the Presidio. It was unanimously approved by RAB community members at the board meeting of Feb. 14, 2006. The resolution is given on the preceding page.

The first summit meeting was convened by the Trust on June 16, 2006, with an agenda developed at RAB meetings during the spring of that year. It was attended by both middle-level and upper-level agency management, including Trust Executive Director Craig Middleton, Golden Gate National Recreation Area General Superintendent Brian O'Neill, and division chiefs of the California Department of Toxic Substances Control and Regional Water Quality Control Board. RAB community member Doug Kern, the longtime volunteer facilitator of the RAB, facilitated the meeting and community co-chair Mark Youngkin represented RAB citizen members. The meeting focused on the mutual goals of the agencies, the projected budget shortfall and cost reduction and funding strategies, and was considered a successful and open discussion.

The group decided to continue the meetings, and additional summits with agency managers were held at regular intervals between Oct. 24, 2006, and Feb. 10, 2009, with Doug Kern serving as facilitator and Mark Youngkin continuing as a representative of community members. These subsequent meetings focused on resolving problems with ongoing remedial action plans for various sites in addition to addressing financial challenges. The proposed agendas and reports on the summits were presented and discussed at meetings of the full board. RAB community members believe the meetings were instrumental in the successful outcome of the environmental remediation program.



Golden Gate Club in the Presidio, site of interagency summit meetings from 2006 to 2009 and RAB board meetings in the 2000s



THE PRESIDIO OF SAN FRANCISCO RESTORATION ADVISORY BOARD



FINAL REPORT

Twenty Years of Public Participation 1994-2014
in the Environmental Cleanup of Our New National Park

Chapter 10. The Adjournment of the RAB

“Adjournment,” as defined by the U.S. Department of Defense in regard to a Restoration Advisory Board, refers to the disbanding and normally permanent termination of a RAB. A 2007 Restoration Advisory Board Rule Handbook prepared by the DoD explains:

A RAB’s work is complete when there are no longer any environmental restoration activities at an installation because the installation has either reached a remedy in place or response complete, or when the community is no longer sufficiently interested. At that time the RAB should complete the documentation of its activities and begin the process of adjournment.

While adjournment, in everyday use, often carries the connotation that a group may reconvene, in this particular use it is meant to describe the permanent conclusion of a RAB, unless unusual circumstances arise. The handbook, based on federal regulations issued in 2006, states that “a RAB is considered permanently adjourned unless new conditions are discovered, which could lead a RAB to re-establish itself.”

The guidelines say a formal adjournment procedure is not required, but is recommended because it “provides all parties with a sense of closure.” As indicated above, the handbook also recommends documentation of the RAB’s activities, which was one of the impetuses for the preparation of this final report.

In this chapter, community members of the Presidio of San Francisco Restoration Advisory Board describe our rationale for adjournment after 20 years of public service and the action taken to adjourn the RAB on April 8, 2014. The main reason for our adjournment is that the cleanup is essentially complete. All known major sites listed in agreements with state regulatory agencies have been addressed and the cleanup planning and decision-making process has been substantially concluded.

As described earlier in this report, the Presidio environmental remediation was conducted through three programs carried out at first by the U.S. Army and then by the Presidio Trust: the Petroleum Cleanup Program; the CERCLA Cleanup Program for hazardous substances regulated under the federal Comprehensive Environmental Response, Compensation, and Liability Act; and the Lead-Based Paint in Soil Cleanup Program. By the spring and summer of 2014, the two state agencies providing oversight for these programs, the California Regional Water Quality Control Board

and California Department of Toxic Substances Control, issued certifications that the cleanup of the dozens of sites listed in their previous directives was completed.

We know that some sites will require ongoing monitoring and maintenance and that a few recently discovered sites were still undergoing remediation as of 2014. Additional previously unknown contamination may be discovered in the future. We are confident, however, that any subsequent environmental actions can be successfully achieved through the ongoing maintenance and contingency plans established by the Presidio Trust and the existing remediation processes administered by the DTSC and the Water Board. We believe public review can be accomplished through the Trust's community outreach procedures in conjunction with established DTSC and Water Board public participation processes.

During the last two decades, RAB community members witnessed a thorough environmental investigation and cleanup at the Presidio and observed that applicable federal and state regulations and guidelines were followed. We believe the DTSC and Water Board provided careful oversight of the Army's and Presidio Trust's cleanup efforts. RAB community members evaluated the adequacy of the investigation and remediation through document review, independent research and analysis.

Although localized areas of residual contamination may continue to be discovered for many years, we are confident that the remediation actions carried out by the Army and Presidio Trust are at a higher level of cleanup than those occurring at most closing military bases. We can assure the public that a comprehensive effort was made at the Presidio to convey a safe national park to the public for future enjoyment.

The next two sections of this chapter describe our rationale for adjournment in more detail. The first summarizes the completion of the three cleanup programs. The following section discusses the procedures in place for monitoring existing sites and addressing any previously unknown contamination that may be discovered in the future. We then offer some specific recommendations on efforts to keep the public informed of future environmental cleanup decisions and actions. Finally, our report concludes with documentation that the Restoration Advisory Board formally voted to adjourn the RAB at our final meeting on April 8, 2014.



Present-day view of coastal bluffs following clean closure of landfills

A. Completion of the Three Cleanup Programs

The primary rationale for the RAB's adjournment is that to the best of our knowledge, environmental remediation activities at the Presidio of San Francisco have been successfully completed at all the previously known sites listed in agreements and orders pertaining to each of the three cleanup programs. No further significant environmental cleanup decisions appear to be required at this point.

As was recounted in earlier chapters of this report, environmental cleanup efforts at the Presidio began in the 1980s under the aegis of the U.S. Army. The Army retained responsibility for the environmental cleanup after the Presidio was decommissioned as a military base in 1994 and transferred to the National Park Service to become part of the Golden Gate National Recreation Area. The military retention of the remediation duty was normal procedure for closed bases.

In May 1999, however, the Presidio Trust took over responsibility for known contamination through two innovative interagency agreements. The Trust was created by Congress in 1996 to manage the 1,168-acre inland section of the park, known as Area B, while the National Park Service (a division of the U.S. Department of the Interior) continued to administer the 323 coastal acres known as Area A.

In the first Memorandum of Agreement, the Army, Presidio Trust and Interior Department agreed that the Trust would become the lead agency for environmental cleanup in both sectors of the Presidio. In a second, related Memorandum of Agreement between the Trust and Interior Department, the Trust confirmed its responsibility to take over as lead agency for the cleanup of Area A. Together, these two memoranda transferred responsibility for known (or "enumerated") sites to the Trust. The Army retained responsibility for unknown contamination and any radioactive material, chemical or biological warfare agents or unexploded ordnance that might be found in the future.

The three cleanup programs for the remediation of then-known contamination and the regulatory actions that certified them as complete in 2014 can be summarized as follows:

1. The Petroleum Cleanup Program addressed historic spills of gasoline, diesel, jet fuels and other petroleum products at the Army's former gasoline stations, fuel depots, vehicle and aircraft maintenance facilities, and fuel distribution system (FDS) pipeline and tank system for the delivery of heating oil. This program was the first to be undertaken and much of it was completed by the Army in the 1990s. It was regulated by the California Regional Water Quality Control Board for the San Francisco Bay Region in three successive orders. The first, issued in 1991, required the cleanup of petroleum hydrocarbons in soil and water at two former fueling facilities, known as Buildings 231 and 937, in the Crissy Field area. It was followed by a Presidio-wide petroleum cleanup order in 1996. In 2003, the Water Board issued a revised Presidio-wide order, entitled Order No. R2-2003-0080, which remained in effect until 2014.

On May 14, 2014, the Water Board issued a rescission order stating the 2003 order had been fulfilled and was therefore terminated. It said that 576 petroleum

storage tanks were investigated and either removed, remediated or found to require no further action. Of these, the Army and Trust removed or addressed 476 petroleum-product tanks under the supervision of the Water Board. Nine other tanks containing waste oils or other hazardous substances were removed under the DTSC's supervision and 91 were removed under oversight of the San Francisco Public Health Department in the late 1980s. About 45,000 feet of a heating oil pipeline network known as the Fuel Distribution System were excavated and disposed of off-site or cleaned and sealed by the Army between 1996 and 1999. The Army and the Trust also excavated 100,000 tons of soil contaminated with leaks from pipelines and tanks and treated additional soil with on-site methods.



Map of petroleum cleanup sites, fuel distribution system pipelines and tank sites addressed in the Petroleum Cleanup Program. Source: Adapted from Presidio Trust, Report Supporting Rescission of Water Board Order R2-2003-0080, May 2014, prepared by Erler & Kalinowski, Inc.

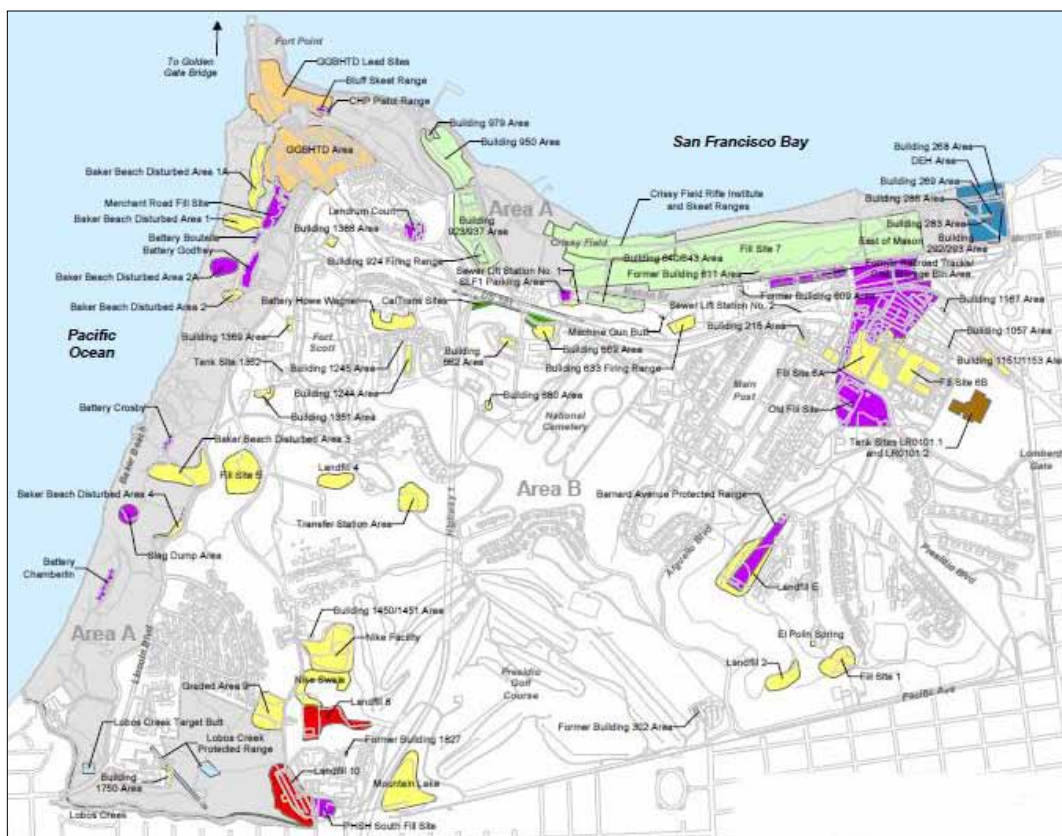
2. The CERCLA Cleanup Program addressed hazardous substances covered by the federal Comprehensive Environmental Response, Compensation, and Liability Act of 1980. Under this program, the Army and the Trust excavated, capped or managed contamination from substances such as chemicals, lead and other metals, industrial solvents and polychlorinated biphenyls (PCB) at 76 sites across the Presidio.

The sites included 12 large waste and debris landfills that were excavated in a process known as clean closure, thus allowing the restoration of natural areas, streams and habitat in the park. At several other landfills, contamination was contained by

engineered soil covers. Other sites in this program were the locations of former incinerators, firing ranges, a transfer station, and weapon and missile batteries. In all, a total of 350,000 tons of waste mixed with soil was excavated, according to the Trust.

The CERCLA program was regulated by the state Department of Toxic Substances Control. The Army began studies of the sites in 1989 and completed work at several locations by the time the Trust took over the remediation responsibility in 1999. These included several sites at Crissy Field (in addition to the petroleum sites mentioned above), which were cleaned up as part of the fast-track restoration of this area along the northern shore of the Presidio. One of the sites was Fill Site 7, which became the first Presidio landfill to be removed in clean closure. The Trust completed the remainder of the CERCLA sites under a Consent Agreement reached with the DTSC in August 1999.

On May 20, 2014, the DTSC issued an Acknowledgment of Satisfaction of the terms of the Consent Agreement, thereby terminating the agreement. In cover letters accompanying final reports to the DTSC and Water Board, Eileen Fanelli, the Trust's environmental remediation manager, said the complex cleanups were completed "to a standard reflective of the Presidio's continued use as a national park and public asset."



Map of contamination sites addressed in the CERCLA Cleanup Program, categorized by Operable Unit. Source: Presidio Trust, Basewide Report of Compliance submitted to DTSC, May 2014, prepared by AMEC Environment & Infrastructure Inc., with annotations added

3. The Lead-Based Paint in Soil Cleanup Program concerned lead deposited in soil by flakes of lead-based paint that peeled off buildings and fell into the earth immediately surrounding the structures. As was discussed in Chapter 7 of this report, this lead was particularly dangerous to young children who might touch or play in the contaminated soil. The Army and the Trust investigated and when necessary excavated or otherwise addressed lead-contaminated soil at 814 residential and non-residential buildings and other Presidio structures that had been covered with lead-based paint.

This program was regulated by the DTSC, which approved a Presidio-Wide Lead-Based Paint in Soil Investigation Work Plan for the Trust's ongoing work in 2008. The work plan was separate from the Consent Agreement and the DTSC's acknowledgment of completion of the work was given in a series of letters certifying that no further action was needed at individual buildings or groups of buildings. By June of 2014, the Trust had received approval letters for virtually all the buildings.



Restored historic officers' residences known as Pilots Row, after remediation and renovation

As was recounted in Chapter 2 of this report, the Army established the Presidio Restoration Advisory Board in 1994 and the Presidio Trust agreed in the 1999 Memorandum of Agreement to retain it. In addition to our rationale that the environmental remediation program is substantially complete, a second reason for our RAB's adjournment is that the Trust indicated to us that it planned to end its sponsorship of the RAB after receiving the regulatory closure certifications and thereby terminating the three state-mandated cleanup projects. We believe it would be difficult to sustain interest by RAB members and the public at large in maintaining RAB oversight after the existing environmental remediation program is dissolved. We understand the Trust will voluntarily continue to operate an environmental remediation department to address ongoing and future remediation concerns.

We therefore concluded the best course was to adjourn the RAB voluntarily to coincide with the termination of the environmental remediation program, and to rely on other, existing public outreach mechanisms by the Trust, DTSC and Water Board for public participation in any future cleanup monitoring and planning. We believe these measures, which are described later in this chapter, can adequately assure continuing public participation in view of the reduced need for future cleanup activity.

B. Procedures for Monitoring Known Sites and Addressing Any New Sites

As part of our documentation of why we believe adjournment of the Presidio RAB is appropriate, this section discusses the procedures the Trust and the two state regulatory agencies have in place for ongoing maintenance and monitoring of existing remedies and treatment of any newly discovered pollution. Any ongoing protective measures needed at sites where contamination remains, such as regular inspections of soil covers, groundwater testing and land use controls, are incorporated as requirements in the site decision documents approved by the DTSC and Water Board. The discovery of any new contamination would require creation of a new cleanup case under the supervision of one of the agencies in accordance with existing regulatory procedures and site mitigation processes.

We believe these procedures are well established and will successfully protect human health and the environment at the Presidio in the future. They are described in four categories below:

- 1) Operations and Maintenance of Remedies;
- 2) Land Use Controls and Land Use Notifications;
- 3) Petroleum Contingency Plan;
- 4) Voluntary Cleanup Agreements.

1. Operations and Maintenance of Remedies

Ongoing operations and maintenance activities, known as O&M, are required at certain sites in the Presidio where some contamination was contained and left in place, such as the Landfill E, Landfill 8 and Landfill 10. An Operations and Maintenance Agreement signed by the Presidio Trust, National Park Service and DTSC in 2012 covers these activities, when needed, at the hazardous substance sites addressed under the CERCLA program. The agreement applies to both Areas A and B of the park and remains in effect for the designated sites following the termination of the Consent Agreement.

The O&M Agreement provides that the DTSC will oversee these maintenance and monitoring activities and requires the Trust to develop an Operations and Maintenance Plan for sites where contamination was contained. The Trust prepared an initial plan in 2012 and added other sites as remediation was completed during the next two years. Future remediation sites will be added if operations and maintenance are required by the relevant decision document. The agreement specifies that the Trust will continue to follow the O&M requirements unless or until the DTSC authorizes it to discontinue or modify the activities at a particular site. RAB community members have inspected existing O&M plans and agree that the documentation and process appear reasonable.

The agreement requires the Trust to submit annual O&M reports to the DTSC. At sites where contamination was left in place at elevated risk levels (above concentrations that allow unlimited use), five-year reviews are required. The reviews must reevaluate whether human health and the environment are being adequately protected by the soil containment cap system or other remedy. Any discovery of new contamination at sites with existing O&M plan would be addressed by additional work plans and remedial actions separate from the O&M plan.

The O&M plans for CERCLA sites include three types of requirements:

- a) Inspection and maintenance of engineered soil caps** placed over contaminated soil, such as the soil covers on Landfills E, 8 and 10.
- b) Groundwater and surface water monitoring**, either limited or long-term, to make sure that water has not been contaminated. As of May 2014, the Trust was continuing groundwater or surface water monitoring at four CERCLA sites: Landfill E, Landfill 10, the Nike Missile Site and the former landfill site at Baker Beach Disturbed Area 1, according to the Trust's final report to the Water Board.
- c) Land Use Controls** restricting uses of a site. These controls are incorporated into the O&M Plan and are also documented in a separate Land Use Control Master Reference Report. The controls and the report are described in more detail in the following section.

A separate Operations and Maintenance provision of the Water Board's 2003 order applied to petroleum-based contaminants in surface water, groundwater and soil at the Presidio. This provision required the Trust to maintain in good working condition and operate as effectively as possible any facility or control system installed to achieve the requirements in the decision document for a remediation site. We understand that, following the termination of the 2003 order, the Trust agreed to implement the O&M plans and requirements for petroleum sites under the same procedures as for CERCLA sites. According to the Trust's final report to the Water Board on May 9, 2014, petroleum sites where O&M requirements continue in force include seven sites or areas subject to land use controls; all petroleum-related groundwater monitoring has been completed.

2. Land Use Controls and Land Use Notifications

Land Use Controls are limits on the use of a particular piece of land that are considered necessary to protect human health or the environment because of the risk of exposure to residual contamination at that site. For example, a site may be remediated to a level deemed safe for recreational use, but not to the more stringent level required for residential use. Land Use Controls can also be used to protect habitat for wildlife, aquatic life and rare or endangered native plants. Land Use Notifications are a related device that does not restrict the use of a site, but provides useful information about potential contamination or other environmental concerns.

Land Use Controls can consist of restrictions on future use of a site, a ban on drilling water wells, requirements for special procedures if soil is excavated, and in some cases signs or even fences restricting access. Like the other O&M requirements, any Land Use Controls needed for a Presidio remediation site are incorporated into the decision document approved by the DTSC or Water Board for that site. A Land Use Control can be modified or terminated, but only with the approval of the DTSC or Water Board, if there is a change in circumstances such as the completion of additional remediation, new data showing that chemicals are no longer present at levels of concern, or a change in regulatory standards.

About 20 of the dozens of sites remediated at the Presidio are subject to Land Use Controls as of 2014. Among the locations regulated by the Water Board, Land Use Controls at several former petroleum sites along Crissy Field require soil management and worker safety measures if earth is excavated or disturbed. The area of the Commissary, which was built over a former Army motor pool facility, has a similar restriction and would also require further remediation if the area is developed as marsh habitat in the future.

Among the sites regulated by the DTSC, Landfills E, 8 and 10 are subject to controls prohibiting use of the land for housing, schools or daycare centers unless further cleanup is carried out. The sites must also remain covered by soil or concrete barriers and be subject to protective measures if soil is excavated.



Completed soil cover remedy at Landfill E site, awaiting reuse as a ball field

All Land Use Controls in effect in Area B of the Presidio are listed in a central document known as the Land Use Controls Master Reference Report. This report was initially prepared by the Presidio Trust in 2009, pursuant to a provision of the 1999 Consent Agreement, and was approved by the DTSC in 2012.

The Trust has agreed to use the same report and procedures for Land Use Controls regulated by the Water Board as well. After the report was approved, the controls required for specific sites were added to the report as addenda. Any controls required in any future remedies will also be added as addenda. The addenda contain a “Decision Process for Selection of Mitigation Measures” specifying the land use restrictions and soil management protocols for each site. RAB community members have looked at the existing addenda maintained by the Trust and find the reporting process reasonable.

Any future termination or modification of controls will also be documented in the report, upon approval of the DTSC or Water Board. The report is available at the Presidio Trust library and on the DTSC's Envirostor website. An annual report on the monitoring of Land Use Controls must be included in the annual O&M reports submitted to the DTSC.

We understand that the Land Use Controls are also listed in a related reference tool known as the Geographical Information System. This computerized system allows users to submit queries for particular buildings, utilities or areas of the Presidio. If a Land Use Control is in effect at a site, it is flagged and identified in a link that describes any land use restrictions and/or worker safety and soil management measures that would be required if grading, earth disturbance or excavation is undertaken. The system enables Trust staff and other users to review requirements when considering possible leasing or development of a site, a change in the use of the site, utility maintenance, landscaping or park restoration, including stewardship by volunteers.



Commissary area across from restored Crissy Field Marsh in 2014; subject to Land Use Controls in event of future excavation or expansion of the marsh

For the shoreline land in Area A of the Presidio, the National Park Service uses a different but similar tracking system under DTSC oversight, referred to as the Golden Gate National Recreation Area Compendium. Because it is Park Service policy not to diminish the future use of park land with covenants or Land Use Controls, significant land use restrictions are not anticipated in Area A.

A Land Use Notification is a related mechanism used to provide information about residual contamination that may be present but is considered either fully contained or a low threat, or about other potential environmental concerns. A notification does not restrict site uses, but informs present or future users of the presence and locations of residual contamination, debris fill, abandoned underground utilities or other identified or potential environmental concerns. As of 2014, notifications are required by the DTSC at two CERCLA sites and several lead-based paint sites at the Presidio. RAB community members endorse the use of the notification system and urge the Trust to expand its application to include all potential environmental

concerns such as historic warfare training sites identified in the U.S. Army's 2003 Archive Search Report; unregulated substances such as lead deposited from vehicle exhaust; and sites where remediation has been completed or Land Use Controls have been terminated.

Two other types of restrictions at the Presidio operate as land and water use controls to protect health and safety. One of these restrictions is limits on soil excavation. Presidio tenants are not allowed to excavate or disturb the ground surface without approval. The Trust routinely monitors all excavation activities on the Presidio for evidence of military ordnance and other agents, evidence of soil contamination, artifacts or cultural features. It has also implemented a Dig Permit process to review proposed excavation work and notify project proponents of locations and applicable soil management requirements where land use restrictions are in place.

A second restriction is that groundwater pumped from wells at the Presidio could not be used as drinking water without further environmental review and regulatory approval. The Presidio Trust Management Plan for Area B of the park, which was studied in an environmental impact statement under the requirements of the National Environmental Policy Act, indicates that 80 to 85 percent of the Presidio's drinking water comes from Lobos Creek and the remaining amount is purchased from the San Francisco Public Utilities Commission. A change in that plan to allow the use of groundwater for drinking water supply would require further environmental study as well as a permit from the California Department of Public Health.

3. Petroleum Contingency Plan

The Presidio's Petroleum Contingency Plan was developed by the Presidio Trust in 2004 and was required by the Water Board's 2003 basewide order. Its purpose is to standardize the handling and reporting of small occurrences of petroleum soil contamination. The underlying assumption is that because the use of petroleum fuels and other petroleum-based products was historically widespread across the Presidio, it is likely that localized areas of residual petroleum contamination will continue to be discovered during maintenance work, construction work or other subsurface activities at the Presidio for many years.

The plan provides that when previously unknown contaminated soil is encountered and the contamination is determined to be petroleum hydrocarbons or related constituents, the site may be designated a petroleum contingency site. Typical discoveries that the plan would be applied to include abandoned fuel pipes, underground storage tanks, and unnaturally stained, discolored or odorous soil suspected of petroleum contamination. The plan does not apply to sites where chemicals other than petroleum hydrocarbons or related constituents are found in the initial testing.

The plan is intended to cover occurrences of approximately 500 cubic yards or less and to provide a standard technique for excavating the contaminated soil and disposing of it at a licensed off-site facility, so that the originally intended construction or maintenance work can proceed without extended delay. The procedures

include notification of regulatory agencies; soil and water sampling and analysis; reporting remedial measures and sampling results to regulators; and carrying out additional remediation actions under Corrective Action Plan or Mini-Corrective Action Plan protocols. If all of the contaminated soil cannot be or is not removed, the Trust will notify the Water Board that affected soil remains in place and a Corrective Action Plan will be submitted to address the remaining contamination.

Decisions about whether a relatively large occurrence of contamination fits within the purview of the contingency plan will be made on a case-by-case basis in consultation with the Water Board. An occurrence considered too large for application of the plan would be treated as a normal petroleum release discovery under existing enforceable Water Board regulations and guidelines. If the Water Board then takes future action (such as adopting waste discharge requirements, site cleanup requirements or enforcement orders), its established public participation process, with opportunities for public comment, would be used.

The plan applies to both Area A and Area B of the Presidio. If a petroleum contamination site is found in Area A, a written description of sampling activities or other plan must be submitted to the National Park Service project review office for approval and the Trust will consult with Park Service staff in preparing the materials for submission to the review office.

4. Voluntary Cleanup Agreements

In the 1999 Memoranda of Agreement, the Army, Presidio Trust and Interior Department stipulated that the Army retained responsibility for then-unknown contamination and for any radioactive material, chemical or biological warfare agents or unexploded ordnance (UXO) that might be found on the Presidio in the future. Thus, the cleanup of previously unknown contamination discovered on the Presidio would be the responsibility of the Army under the oversight of the DTSC or Water Board. To date, however, the Army has not exercised its option to conduct the investigation or remediation at such sites. Instead, it has engaged the Presidio Trust to perform the cleanup with funding provided by the Army and this arrangement is expected to continue in the future.

The usual procedure for cleaning up contamination sites discovered in the future is expected to be a Voluntary Cleanup Agreement. Both the DTSC and the Water Board have programs for such agreements, in which the staffs of the regulatory agency and the agency carrying out the cleanup (e.g., the Trust) work cooperatively to develop a plan. If a voluntary agreement is not reached, or if there appears to be a serious health threat that is not being addressed in a timely way, the two regulatory agencies retain the authority to issue enforcement orders.

The DTSC's program for contamination investigated under the CERCLA law is called the Voluntary Cleanup Program. Preparation of a Preliminary Endangerment Assessment is the first step in identifying whether a release has occurred, estimating the potential risk to public health and the environment, evaluating whether

immediate response is needed to reduce risk, and determining whether further action or investigation is needed. The plan for the site could include a cleanup action or a recommendation for Land Use Controls as an appropriate remedy. All new cleanup actions would follow the established public participation and outreach procedures contained in the DTSC's Public Participation Manual. After remediation has been completed, the DTSC will issue a certification of completion or a No Further Action letter stating that the site has been successfully remediated and is suitable for reuse with any land use restrictions or notifications required.

Petroleum contamination sites that are too large to be suitable for the Petroleum Contingency Plan would be addressed through an equivalent Water Board program called the Site Cleanup Program. The Water Board would provide opportunities for public participation in the oversight process so that the public would be informed and have an opportunity to comment. After a cleanup has been completed, the board provides a case closure letter or No Further Action confirmation as part of the case closure summary report, designating the appropriate Land Use Control or Land Use Notification as needed.

C. Recommendation for Expansion of Land Use Notification System

We endorse the use and expansion of the Land Use Notification system. During the two decades of the RAB's operation, we observed several cases where new contamination was discovered at remediation sites once believed to have been fully studied and addressed. These include the recurrent contamination at the Commissary and Building 637 former fueling and motor pool sites at Crissy Field and the lead discovered in Mountain Lake sediment in 2000. At Inspiration Point, the Army declared the area safe and several years later, bottles of mustard gas agent used in chemical warfare decontamination training sometime between the 1930s and 1950s were discovered.

We note that the environmental remediation program received approval from the DTSC to amend its Presidio-Wide Lead-Based Paint in Soil Investigation Work Plan to allow a No Further Action certification to be combined with a Land Use Notification. We believe that on a former military base converted to a national park, all no-further-action designations at remediation sites should be accompanied by a permanent Land Use Notification.

Similarly, we believe that all terminated Land Use Controls should also be converted to Land Use Notifications to document permanently the environmental history of a site. This approach would help to ensure that future managers will be able to prepare for unexpected environmental conditions.

We also endorse extending the Land Use Notification system to include warfare materials and unregulated substances. For example, the historic warfare training sites identified in the U.S. Army's 2003 Archive Search Report could be documented with Land Use Notifications in case the Army's determination of no further action was

premature (as at the former 1918 West Cantonment Trench System, where the four mustard gas bottles were discovered in 2002). As discussed in Chapter 7, we urge the use of Land Use Notifications to track occurrences of elevated lead in soil from vehicle exhaust not regulated by the DTSC. Notifications could also be used to document the location of demolished buildings where residual lead-based paint in soil may exist.

We believe expansion of the Land Use Notification system would provide an extra safeguard for human health and the environment and would be in keeping with the Trust's innovative approach to the remediation. The size of database necessary to create a comprehensive Land Use Notification system is relatively small and we advocate including all known buildings and sites where investigation and/or remedial actions occurred, including all miscellaneous sites.

D. Recommendations for Future Community Outreach and Participation

Community members of our RAB are voluntarily adjourning with confidence that the Presidio Trust's ongoing community relations efforts by the Trust, the DTSC and the Water Board will provide adequately for continued public input into future environmental remediation decisions. We believe that other means of communication with the public can be as effective as regular RAB meetings, in view of the diminished future remediation activities at the Presidio.

The Presidio Trust communicates with the public through its website, regular newsletter updates to the Presidio-wide e-mail list, specialized mailing lists, and outreach to tenants and civic groups. These media can be used together with the DTSC and Water Board public participation processes to notify the public of any future cleanup activities and opportunities to review cleanup documents and provide comment.

We ask that the Trust, DTSC and Water Board provide timely and effective notice to the public of the following remediation-related actions:

- Five-year reviews of CERCLA hazardous substance sites;
- Any discovery of previously unknown contamination other than releases covered by the Petroleum Contingency Plan;
- Land Use Control Master Reference Report addenda and modifications;
- Opportunities for public comment related to environmental investigations and cleanup activities.

We suggest that public notice could most effectively be carried out through a combination of announcements on the environmental remediation section or similar section of the Trust's website and e-mail notices. E-mail announcements could be sent either to the Trust's general e-mail list or to a specialized list of interested parties,

but in the latter case, members of the public should be given periodic opportunities to opt in to the specialized list. Initial notice of future public participation opportunities and notification options could be included with a notice of the RAB's adjournment on the website.

We urge the Trust to continue its ongoing environmental outreach to Presidio tenants and to interested neighborhood, conservation and community groups such as Arc Ecology, California Native Plant Society, Cow Hollow Association, Friends of Mountain Lake Park, Golden Gate Audubon Society, Marina Civic Improvement & Property Owners Association, Neighborhood Associations for Presidio Planning, Pacific Heights Residents Association, People for the Parks/Presidio, Planning Association for the Richmond and Sierra Club, among many others. If previously unknown contamination is discovered, we urge timely and proactive communication with tenants and other park users who may be affected.

The Presidio Trust should monitor for any changes in community interest that could warrant reactivating or re-establishing a RAB or similar community oversight committee. If the community wishes to restart its involvement with a RAB-like committee, a citizens' advisory group could be formed by the Trust or Park Service to continue the functions of the RAB, or the Trust could assist the community in working with other agencies to establish an advisory group with a willing sponsor.

Public participation in the Presidio's environmental remediation program was previously governed by a Community Relations Plan approved by the California DTSC in 2001 as well as by the 1999 Memorandum of Agreement that continued the operation of the RAB. The Community Relations Plan will no longer be enforceable, however, following the DTSC's May 2014 certification of fulfillment of its 1999 Consent Agreement with the Trust.

The DTSC has nevertheless made a long-term commitment since the early 1990s to involve the public in the DTSC decision-making processes related to the protection of public health and the environment. We note that DTSC guidance provides a possible mechanism for establishment of a community advisory group should one appear necessary. The agency defines a "community advisory group" as a group of volunteers who represent the composition and diversity of the local community or communities interested in DTSC investigation and cleanup activities at a specific site. A DTSC publication entitled Community Advisory Group Handbook, issued in September 2009, provides details of how interested citizens could petition DTSC to start a community advisory group at the Presidio.

We consider the re-establishment of a new community advisory group or similar citizens' group to be unlikely to occur in the future, in view of the environmental conditions as we now understand them at the Presidio. Community members therefore believe it is essential to have ongoing public participation systems in place to provide timely information to the public through newsletters, websites and outreach.

E. Actions Taken Following RAB Adjournment

RAB community members understand that the Presidio Trust, California Department of Toxic Substances Control, Water Board and National Park Service have agreed to take the following actions after the formal RAB adjournment to document the adjournment and ensure that public participation will continue for any future environmental remediation activities:

- Update the Administrative Record to include this Final Report.
- Place this Final Report in the repository at the Presidio Trust library.
- Place this Final Report in the document repositories at the Department of Toxic Substances Control, Water Board and National Park Service.
- Provide timely public notice on the Trust website and by e-mail to interested parties, including former RAB members, of the following: five-year reviews of CERCLA sites; any discovery of unknown contamination other than releases covered by the Petroleum Contingency Plan; Land Use Control Master Reference Report addenda and modifications; and opportunities for public comment on environmental remediation activities and plans. If a specialized e-mail list is used, the public should be given periodic opportunities to opt in to receiving notices.
- Continue timely outreach to tenants and park users affected by environmental remediation activities and to neighborhood, conservation and civic groups that have been engaged with environmental cleanup at the Presidio.

F. RAB Final Resolution and Adjournment Approval

During discussions at RAB meetings in the fall of 2013 and early 2014, RAB community members decided to adjourn voluntarily for the reasons described above. The group also decided to hold a formal adjournment session to provide past and present RAB members and stakeholders with a sense of completion, in keeping with the Defense Department recommendation mentioned at the beginning of this chapter. The RAB's regular public meeting of April 2014 was chosen as the date for adjournment because at that point, the RAB had essentially fulfilled its role of reviewing cleanup plans, although the Trust was still awaiting regulatory agencies' certification of completion of the programs.

The adjournment meeting, sponsored by the Presidio Trust, was held as a public RAB meeting at the Golden Gate Club in the Presidio on April 8, 2014. It was followed by a celebration and reception provided by the Trust. We invited all current and past RAB community and agency members whose contact information we could find, as well as representatives of civic groups that had worked with the RAB. Leaders of the Trust, the National Park Service's Golden Gate National Recreation Area and the Golden Gate National Parks Conservancy were invited by the Trust to participate. More than 60 people attended.

RAB facilitator Doug Kern, a community member since 1994, opened the meeting and introduced each speaker. Eileen Fanelli, the Trust's environmental remediation program director since 2008, gave a summary of the completion of the three cleanup projects. Presidio Trust Executive Director Craig Middleton, Trust Chief Operating Officer Jeff Deis, GGNRA General Superintendent Frank Dean and Conservancy Chief Executive Officer Greg Moore then each spoke. They commended the staff of the Trust, Park Service and regulatory agencies on the cleanup and thanked RAB members for their service.

Craig Middleton, the Trust's executive director since 2001, told the present and former RAB members, "One of the things I really want to commend you on is your keeping the eye on the prize – keeping your eye on the prize. And the prize was really that we are creating a national park here that people were going to enjoy, and we weren't going to do it with bunch of land use controls."

"And you guys said over and over again, you are going to clean it up. You are not going to do a whole bunch of land use controls. And I think that has served the public really, really well," he said.

Frank Dean, on behalf of the GGNRA, said, "I give the Trust a lot of credit for what I describe as probably the most successful base cleanup and conversion in the country. The Parks Conservancy and Greg Moore had a lot to do with that. The Park Service has been involved along the way but you guys – the RAB – you've had a big hand in that to make this all happen. You've made a huge difference in this park in the Presidio."



GGNRA General Superintendent Frank Dean addressing the RAB Adjournment Meeting on April 8, 2014. Photo: Fred Altshuler

Greg Moore, who had led the Parks Conservancy since 1985, told the audience members, "Looking out at the room, and I think for all of us, it is a bit of a reunion. And I was thinking how rare it is that you have the generosity of volunteer spirit combined with intelligent dialogue and expertise that actually produces an outcome that is there for the ages."

He commented that the adjournment may have been a nostalgic moment for RAB members, but said, "Your legacy continues on. And I hope that you continue to enjoy the place you have created, as your kids and grandchildren will for sure."



Some of the present and former RAB community members who attended the April 8, 2014 adjournment, from left to right: Mark Youngkin, Sara Segal, Toni Kramer, Jan Monaghan, John Budroe, San Berman, Doug Kern, Gloria Gee, Jan Blum, John Chester, JoAnne Chow Winship, Wesley Skow, Julie Cheever, Tracy Wright, Bruce McKleroy, Julian Hultgren. Photo: Tanja A. Kern

Doug Kern acknowledged two audience members who greatly influenced the creation of the park and public participation in the cleanup and strongly supported the RAB's efforts. One was Amy Meyer, the co-founder of People for a Golden Gate National Recreation Area in 1972 and a founding Presidio Trust board member from 1997 to 2003. The other was Arc Ecology director Saul Bloom, a former Technical Review Committee member and founding RAB community member, who brought potential contamination hazards at the base to public attention in the 1980s, advocated the establishment of the RAB, and advised early community members on technical review and public participation.

Doug Kern also acknowledged the contributions of the late GGNRA General Superintendent Brian O'Neill, who as superintendent from 1986 to 2009 guided and oversaw the transformation of the Presidio from a military base to a national park.

Community members Julie Cheever and Mark Youngkin presented an overview of this final report and community members authorized completion of the report.

The final piece of business before adjournment was a proposal for the last formal resolution to be enacted by RAB community members: a commendation to the government agencies and their project managers for their diligent and innovative work in accomplishing the cleanup of the Presidio. The resolution, entitled "Commendation to Agencies for the Cleanup of Presidio of San Francisco," is given on the next page. It was approved by a unanimous vote of community members Sam Berman, Jan Blum, John Budroe, Edward Callanan, Julie Cheever, John Chester, Gloria Gee, Julian Hultgren, Doug Kern, Jim Ketcham, Toni Kramer, Jan Monaghan, Sara Segal and Mark Youngkin.

A motion to adjourn the RAB was then made, seconded, and unanimously approved by the full agency and community membership of the board.

The meeting and the RAB itself were then declared adjourned.

**Presidio of San Francisco Restoration Advisory Board
Community Members**

RESOLUTION

**Commendation to Agencies for the Cleanup
of Presidio of San Francisco**

April 8, 2014

Whereas the cleanup of contaminated soil and groundwater has now been essentially achieved at the Presidio of San Francisco, a former U.S. Army base converted to a national park, and the environmental remediation program is now concluding its work;

Whereas the Presidio's structures, including residential and non-residential buildings, have now been made safe from the hazards of asbestos, lead-based paint, and lead-based paint in soil;

Whereas the Presidio now has twelve restored natural areas for the public to enjoy, where former abandoned military landfills have been removed by clean closure;

Whereas the lead- and petroleum-contaminated sediments have now been removed from Mountain Lake, thereby allowing the lake restoration project to proceed;

Whereas the community members of the Restoration Advisory Board have witnessed the complex task that government agencies faced during the last two decades and their diligent efforts to clean up contamination of the Presidio, its buildings and natural areas;

Whereas the agencies conducting and overseeing the cleanup seriously considered the opinions, investigations and comments by the community members, and the agency project managers endeavored to incorporate community advice into program goals and designs; and

Whereas the public participation process, during the cleanup of the Presidio, provided a significant civic engagement experience and became a successful model of community involvement; now, therefore

Be it resolved that community members hereby commend the public participation efforts by the Presidio Trust, National Park Service, California Department of Toxic Substances Control, California Regional Water Quality Control Board, U.S. Environmental Protection Agency, and U.S. Army;

Be it further resolved that community members hereby commend the agency project managers, past and present, for their perseverance and innovative contributions in accomplishing the successful environmental cleanup of the Presidio; and

Be it further resolved that the Presidio of San Francisco Restoration Advisory Board is adjourning with the knowledge that these dedicated agencies will continue diligently to investigate and remediate any future discovery of contamination at the Presidio and provide for effective public participation. RAB community members are disbanding with confidence that visitors to this new national park will enjoy a safe environment now and in the future.

**Resolution approved by unanimous vote of RAB community members
at the RAB meeting of April 8, 2014**



Coastal bluff with serpentine rock, following clean closure of landfills



**THE PRESIDIO OF SAN FRANCISCO
RESTORATION ADVISORY BOARD**



FINAL REPORT

Twenty Years of Public Participation 1994-2014
in the Environmental Cleanup of Our New National Park

Appendix

Charter and Bylaws

Presidio of San Francisco
Restoration Advisory Board



Historic Army-era photo of the Lombard Gate entrance to the Presidio of San Francisco, date unknown, possibly in the 1950s. Photo: National Park Service

**PRESIDIO OF SAN FRANCISCO
RESTORATION ADVISORY BOARD**

**CHARTER & BYLAWS
AMENDED AND RESTATED**

ADOPTED
OCTOBER 14, 2003

Submitted by:

**Rules Committee
Presidio of San Francisco
Restoration Advisory Board**

**Presidio of San Francisco Restoration Advisory Board
Charter & Bylaws**

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Presidio of San Francisco Restoration Advisory Board

CHARTER & BYLAWS

PREAMBLE

A. BACKGROUND: The Presidio of San Francisco was a U.S. Army military base from 1848 to 1994. In 1988, the Department of Defense began military base closure and conversion activities at the Presidio as part of the Base Realignment and Closure (BRAC) program. In 1993, Congress created Restoration Advisory Boards when it enacted the Defense Environmental Restoration Program (DERP). DERP directed the Department of Defense to provide Restoration Advisory Boards at closing military bases. In 1994, the members of the Presidio's existing Technical Review Committee became founding members of the Presidio's new Restoration Advisory Board (RAB). The new RAB developed and approved the 1994 Charter & Bylaws in conjunction with the U.S. Army, which at that time was responsible for the environmental restoration of the former Presidio military base. The Presidio became a national park, part of the Golden Gate National Recreation Area, in 1994.

B. REASON FOR AMENDMENT: Three agencies have responsibility for the environmental restoration of the Presidio; the U. S. Army, the National Park Service, and the Presidio Trust. The Presidio Trust (formed in 1997) assumed Lead Agency status for the environmental restoration on May 24, 1999 (as formalized in a trilateral Memorandum of Agreement, dated May 24, 1999, among the U. S. Army, National Park Service and Presidio Trust). In June 1999, the Restoration Advisory Board determined that the 1994 Charter & Bylaws needed amendment to reflect the transfer of Lead Agency status from the Army to the Presidio Trust. Therefore on January 11, 2000, the Restoration Advisory Board amended the Charter and Bylaws to reflect this transfer and make other changes to improve the effectiveness of the Board. In October 2003, the Board approved minor amendments to the Charter and Bylaws by adopting these Amended and Restated Charter and Bylaws (hereafter the "Charter and Bylaws").

C. DEFINITIONS & ABBREVIATIONS:

AGENCY = Federal, state or local government organization (i.e., Presidio Trust, NPS, Army, EPA, DTSC, RWQCB, and other agencies). The **Lead Agency** is the principal agency responsible for the Presidio environmental restoration program.

CCSF = City and County of San Francisco

CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended

CLEAN-UP = Activities to protect human health and the environment from hazardous substances

DTSC = California Department of Toxic Substance Control

DOD = U.S. Department of Defense, including the U. S. Army

EPA = U.S. Environmental Protection Agency

NPS = U.S. Department of Interior's National Park Service

TRUST = Presidio Trust, the federal government corporation created by Act of Congress in 1996, for the purpose of developing and administering the Presidio of San Francisco as a national park in accordance with the Trust Act (16 U.S.C. 460bb appendix).

PSF = Presidio of San Francisco

RAB = Presidio of San Francisco Restoration Advisory Board

RWQCB = California Regional Water Quality Control Board, San Francisco Bay Region (Region 2)

Presidio of San Francisco Restoration Advisory Board

CHARTER

Article I. NAME and AUTHORITY

NAME: The name of the organization is "The Presidio of San Francisco Restoration Advisory Board," commonly known as the "Restoration Advisory Board" or "RAB."

AUTHORITY: When the Presidio of San Francisco was designated for military base closure, formation of the Restoration Advisory Board was authorized pursuant to the following:

- a. Site Specific Advisory Boards in the 1998 Recommendations of the Federal Facilities Environmental Restoration Dialogue Committee;
- b. Defense Environmental Restoration Program (DERP) 10 U.S.C. 2705(c);
- c. President's July 2, 1993 Five-Part Program;
- d. DOD's September 9, 1993 policy memorandum on "Fast Track" clean-up initiatives;
- e. DOD's April 14, 1994 FY 94/95/96 Defense Environmental Restoration Management Guidance;
- f. U.S. EPA and California DTSC Restoration Advisory Board Guidance;
- g. Community Advisory Groups in California Senate Bill 47 (Senator Sher 1999) sec. 25358.7.1.

The Restoration Advisory Board was established at the community's request in 1994. The RAB has sustained significant community interest and involvement since that time. After the Presidio's conversion to a National Park, enactment of the Trust Act, and creation of the Trust, the Presidio RAB continues to be authorized by the Memorandum of Agreement (MOA) among the Army, Presidio Trust and National Park Service, dated May 24, 1999. The May 24, 1999 MOA establishes the Presidio Trust as the Lead Agency and preserves the RAB to continue its service to the community.

Article II. MISSION

The Restoration Advisory Board is the principal forum where the people who reflect the diverse interests within the local community can meet with representatives of the Presidio Trust, U.S. Army, NPS, EPA, RWQCB, DTSC and other agencies to discuss and exchange information about the environmental restoration program at the Presidio of San Francisco. The purpose of the Restoration Advisory Board is to create an open and interactive partnership through which communities, agencies and public stakeholders work to produce consensus decisions that restore the environment while incorporating the interests of the Trust as Lead Agency as well as the needs and acceptance of the local community. The Restoration Advisory Board facilitates the early and continued flow to the community of information necessary for responsible decision-making. The Restoration Advisory Board is intended to complement other community involvement efforts and not replace them.

Article III. DUTIES

The duties and responsibilities of the Presidio of San Francisco Restoration Advisory Board are:

1. Whereas legislation and guidance creates opportunities for the public to provide advice, the RAB will give advice to the Presidio Trust, NPS, U.S. Army and appropriate regulatory agencies during decision-making activities relating to the environmental restoration of the Presidio of San Francisco. This advice may be communicated by individual members, groups of members or a consensus of members in a variety of formats including comments either written or presented orally.
2. Whereas the protection of public health and the environment is a serious community concern, the RAB will consider all issues introduced by its members and the general public that are current, future or potential threats to human health and the environment, and their impact on the approved reuse plan and on the community. Pertinent subjects and concerns may include issues defined by CERCLA along with the following: asbestos-containing materials, lead-based paint, radiological-biological-chemical substances, contents of landfills, unexploded ordnance, depleted uranium, pesticides, herbicides, military batteries, magazines, missile facilities, above-ground storage tanks, underground storage tanks, and other environmental issues of concern to the community.
3. Whereas the examination of facts and findings is essential to giving sound advice, the RAB will review, evaluate and comment on environmental clean-up project reports, work plans, budgets, schedules and other documents. Completion of these tasks requires access to a variety of technical data and documents relevant to the cleanup decision-making process and the allowance of normal review periods as specified by DTSC Guidance. The RAB anticipates the cooperation of the Trust in meeting these requirements and will be diligent in actively seeking that cooperation and in requesting the provision of documents and other data and extensions of review periods when necessary.
4. Whereas the community provides environmental restoration advice, the RAB will identify and recommend environmental clean-up requirements, standards, priorities, schedules and goals for each fiscal year. Meaningful public participation requires that the RAB engage in substantive dialogue with restoration decision-makers before clean-up decisions are made. Community Member representation and input will be included in decision-making meetings as appropriate.
5. Whereas public meetings are essential to meaningful public participation, the RAB will hold regular meetings at convenient times and locations. The meetings will be held at a location agreed upon by members. A complete, corrected transcript of each meeting will be made available to the public through the principal information repository and other means agreed upon by the stakeholders.
6. Whereas public participation is fundamental to protecting public health, a Community Relations Plan for the PSF clean-up program will be developed with input from the community. As a means of distributing information, the RAB will develop, maintain and use a mailing list of interested persons, organizations, associations, and community groups that have requested to receive information.
7. Whereas public participation is a dynamic process, the RAB will develop, maintain and amend, as needed, the Bylaws as the operating procedures for membership, public participation, discussion and comment, dispute resolution, communication of information, and other operations of the RAB.

8. Whereas it is essential for community laypersons to understand complex technical data, the Community Members will solicit technical information and support from the Presidio Trust, NPS, U.S. Army, EPA, DTSC, RWQCB, and other agencies to ensure members clearly understand the technical issues involved. The RAB requests that the following types of technical support be provided by the appropriate agency:
 - a. Program presentations, updates, briefings, handouts, and status reports on ongoing restoration programs and site-specific clean-up projects;
 - b. Working groups to explain technical, risk assessment data, models and conclusions, and incorporate community concerns and recommendations into remedial actions as agreed upon by all parties;
 - c. Educational sessions and periodic tours of clean-up sites, particularly for new members who require initial orientation to enable them to perform their duties;
 - d. Prompt responses to questions on technical issues submitted by Community Members.
 9. Whereas a wide range of remedial alternatives have been proposed for contaminated areas of the Presidio, the RAB will interact with the Lead Agency or other land use planning bodies to discuss future land use issues relevant to environmental restoration decision-making. The RAB will review documentation related to the transfer and reuse of property as necessary for its input into the cleanup decision-making process.
 10. Whereas environmental justice is a serious concern to the RAB Community Members, RAB Community Members will seek to ensure that clean-up activities at the PSF are consistent with Executive Order 12898 (February 11, 1994) on Environmental Justice.
-

Presidio of San Francisco Restoration Advisory Board

BYLAWS

The following Bylaws present procedures that govern the organization and internal affairs of the Presidio of San Francisco Restoration Advisory Board.

Article IV. MEMBERSHIP

IV-A. REPRESENTATIVES: Membership in the Restoration Advisory Board is open to persons affected by the closure and conversion of the PSF military base, along with anyone interested in the environmental clean-up at the Presidio of San Francisco. Interested parties could include community residents and representatives from neighborhood associations, special interest groups, the business community, local environmental groups, tribes, homeowners associations, diverse economic and ethnic groups, and other civic groups. Government and regulatory agencies, including representatives from the Presidio Trust, National Park Service, U.S. Army, EPA, DTSC, RWQCB and other agencies may participate.

There shall be two categories of membership as described below:

1. **COMMUNITY MEMBERS:** Community Members may be individuals who are interested in the environmental clean-up of the PSF or representatives of community or environmental organizations that are interested in the clean-up. A community or environmental organization may nominate a

representative for membership and an alternate representative, who may serve in the absence of the representative. The number of Community Members should be large enough to reflect the community's diversity, yet of a size capable of fulfilling their responsibilities in a reasonably manageable way. There shall be a minimum of 20 and a maximum of 30 Community Members, provided, however, that the maximum number may be increased at any time if: (1) a majority of the Membership Committee votes to recommend an increase in the maximum; and (2) at the next following RAB meeting, a majority of Community Members present at the meeting votes to approve the Membership Committee's recommendation. Each Community Member shall have one vote on issues voted upon at RAB meetings. A Community Member shall serve a minimum two-year term. Nominees for Community Member or Alternate Community Member shall be subject to the selection procedures set forth in these Bylaws.

2. **AGENCY MEMBERS:** The Presidio Trust, U.S. Army, NPS, EPA, DTSC, and RWQCB may each have one member. Other agencies may apply for membership and, if approved by a two-thirds vote of all voting members present at a meeting, each shall be entitled to have one member. Each Agency Member shall have one vote. Agency Members shall be appointed by their agencies for terms determined by each agency, subject to replacement and termination at the will of the agency. At the agency's discretion, an alternate member may be appointed to serve in the absence of the regular Agency Member.

IV-B. ADDITION OF NEW MEMBERS: Nominees for RAB membership shall be subject to the following selection procedures:

1. **COMMUNITY MEMBERS:** Community Members and Alternate Community Members may be added at any time. Community membership is determined through the following application and review procedure with membership subject to approval by the Community Members.
 - a. An application for membership shall be submitted to the Membership Committee Chairperson by the Presidio Trust, the point of contact for application submittal.
 - b. The Membership Committee shall review each application and determine, by majority vote of all committee members, whether to recommend the applicant for membership.
 - c. If there is unfilled community membership positions that the Membership Committee determines should be filled, the Membership Committee Chairperson shall deliver to all Community Members who are present at a regular monthly RAB meeting a report of the Membership Committee stating the name and a brief summary of the qualifications of each applicant the committee recommends for membership. Candidates will be invited to attend that RAB meeting and to introduce themselves as prospective members.
 - d. At the next regular monthly RAB meeting a vote shall be taken to determine whether an applicant shall be accepted for membership. A two-thirds vote of those Community Members present shall be required for approval of an applicant for membership.
 - e. If there are no unfilled Community Membership positions or if the Membership Committee shall determine that additional members are not then required, the committee shall establish and maintain an eligibility list of those applicants who are qualified, but have not yet been proposed for membership.
2. **AGENCY MEMBERS:** Agency Members may be appointed and replaced only at the individual agency's discretion and authority.

IV-C. RESPONSIBILITIES

1. COMMUNITY MEMBERS: Community Members represent an important component in the clean-up program. They have a direct responsibility to represent the interests and concerns of their constituents, and of the community as a whole. The responsibilities of Community Members shall include the following:

- a. Regularly attending RAB meetings, committee meetings and participating in reviewing the PSF clean-up program.
- b. Giving advice and comment on the clean-up effort and environmental restoration program.
- c. Regularly reporting back to the constituency (e.g., organization, group, association, tribe and community) they represent. Members are responsible for soliciting comment and opinion from their constituents on clean-up issues.
- d. Providing for the distribution of environmental clean-up information to and from the constituency they represent.
- e. Reviewing and providing comments on documents related to the clean-up effort on the PSF.

2. AGENCY MEMBERS: Agency Members represent an important part of the clean-up program. They have a direct responsibility to meet their statutory and regulatory mandates and to maintain an awareness of the interests and concerns of the community as a whole. The responsibilities of Agency Members shall include the following:

- a. Attending meetings and providing their agency's position and reasoning regarding the clean-up issue under review and discussion. Agency Members will make best efforts to facilitate flexible and innovative resolutions of environmental issues and concerns.
- b. Reviewing and providing comments on documents relative to the clean-up effort. RAB Community Members may request that Agency Members provide these comments for assistance in formulating their own comments.
- c. Informing Community Members of agency positions concerning the clean-up of the PSF. Agency Members serve as an information, referral and resource bank for communities regarding the Presidio's restoration. Agency Members will make best efforts to provide timely and accurate information to Community Members.
- d. Ensuring that applicable, relevant and appropriate environmental standards and regulations are identified and addressed as part of the Presidio's environmental restoration program.
- e. Maintaining a close working relationship with the Community Members. Agency Members will make best efforts to ensure that community input, involvement and acceptance is actively solicited and considered in clean-up decision-making.

IV-D. COMPENSATION: Community Members and the presiding officer shall serve in a voluntary capacity without compensation.

IV-E. CONFLICT OF INTEREST: A conflict of interest shall exist if an issue is brought before the RAB, or any of its committees or subgroups, for discussion or vote and the outcome of the discussion or vote could result in financial gain, either direct or indirect, to a Community

Member or any of that member's relatives or, if within the actual knowledge of the Community Member, to any organization the member represents or in which he or she is an active participant or to individual persons or entities within any such organization. A Community Member must immediately disclose to the RAB any conflict of interest at the time such conflict becomes known to the Community Member. A Community Member shall not participate in discussions of or deliberations on motions and shall not vote if the issue, motion or vote constitutes a conflict of interest for that Community Member.

IV-F. LEAVES OF ABSENCE: Community Member may take one leave of absence of up to 90 days during each two-year period by delivering to the Membership Committee Chairperson or the Community Co-Chair, a written notice specifying the dates of the proposed leave of absence. During any such leave of absence, the member's position shall be deemed vacant under the bylaw provisions governing attainment of a quorum and rules on voting and motions. Additional leaves of absence or leaves of absence for longer periods must be requested in writing addressed to the Membership Committee and delivered to the Membership Committee Chairperson or the Community Co-Chair and shall be granted only if: (1) a majority of the Membership Committee votes to recommend granting the leave; and (2) at the next following RAB meeting, a majority of the Community Members present at the meeting votes to approve the Membership Committee's recommendation. Any such approval of a request for leave of absence shall be subject to the following conditions: (1) during the leave of absence, the member's position shall be deemed vacant for all purposes under these bylaws, including, without limitation, attainment of a quorum, rules on voting and motions, and addition of new members; and (2) upon expiration of the leave, the member may be reinstated as an active Community Member only if there are fewer than the maximum allowed number of Community Members serving on the RAB at that time.

IV-G. RESIGNATION & TERMINATION:

- 1. RESIGNATION:** A Community Member may resign at any time by informing the Community Co-Chair or Agency Co-Chair of his or her election to resign, preferably in writing. A resigning Community Member may nominate a new member as a replacement by written notification to the Community Co-Chair, and such nominee will be considered pursuant to the membership procedures at Section IV-B.1 of these Bylaws.
- 2. TERMINATION:** Regular attendance at meetings is necessary to ensure ongoing and consistent involvement by Community Members. The procedure for termination of a Community Member is as follows:
 1. Unless a leave of absence has been approved pursuant to these Bylaws, the absence of a Community Member from three consecutive regular RAB meetings, or from four regular meetings in any calendar year, or the censure of a Community Member as provided in these Bylaws, shall be cause for termination.
 2. In any such event, the Community Co-Chair will prepare notice of termination and cause it to be sent to the member by regular U.S. mail delivery to the member's address listed in the membership roster.
 3. A member notified in writing of termination may appeal within 35 days after mailing of the termination notice by sending the Community Co-Chair a request in writing for reinstatement of membership. Reinstatement of membership must be approved by a majority vote of Community Members present at a regular RAB meeting.

4. If the member does not appeal within 35 days after mailing of the termination notice, or if the appeal is not approved by a majority vote of Community Members, the termination stands and no further appeal is allowed.
 3. **AGENCY MEMBERS:** An Agency Member may be appointed, replaced or terminated at the individual agency's discretion and authority.
- IV-H. CENSURE:** Censure is an extreme measure to be used judiciously only in cases of severe disruption to RAB operations or violation of the Bylaws. The procedure for censure of a member is as follows:
1. Any RAB Member may be censured for unbecoming or inappropriate conduct by a two-thirds vote of the voting members present at a meeting.
 2. A censured Community Member shall be terminated as a member pursuant to the termination provisions in these Bylaws.
 3. A censured Agency Member is not subject to termination. However, a letter requesting that a censured Agency Member be replaced and explaining the circumstances may be sent to the Agency Member's manager.
-

Article V. OFFICERS

- V-A. CO-CHAIRS:** The RAB shall have two Co-Chairs [the Community Co-Chair and the Agency Co-Chair] who shall serve as officers. The Community Members shall elect the Community Co-Chair. The Lead Agency shall appoint an Agency Co-Chair.
- V-B. ELECTION OF OFFICERS:** Nominations for the Community Co-Chair shall be solicited from Community Members and the Membership Committee. Candidates must be aware of the general duties and responsibilities of the office, be committed to serve as the focal point for community outreach, and be prepared to report to the community as a whole. The Community Co-Chair shall each be elected by a majority vote of the Community Members present at a regular meeting.
- V-C. TERM OF SERVICE:** The Community Co-Chair shall serve for a term of one year. After one year, the Community Co-Chair serves on a month-to-month basis until replaced by an election that must be held if a petition requesting an election is submitted by at least five Community Members. Notwithstanding these provisions, a Community Co-Chair may be terminated at any time by (1) voluntary resignation or (2) recall by the Community Members. The Agency Co-Chair shall be appointed, replaced or terminated at the sole discretion of the Lead Agency.
- V-D. DUTIES OF THE COMMUNITY CO-CHAIR:** In order to promote the official activities of the RAB, the elected Community Co-Chair shall perform the following duties:
1. Preside over meetings or delegate the responsibility, subject to these bylaws, to a Facilitator or Agency Co-Chair.
 2. In close coordination with the Agency Co-Chair, prepare and assist in distributing a meeting announcement and agenda prior to each regular and special RAB meeting.
 3. Assist the Agency Co-Chair in providing documents in a timely manner to the RAB and its committees on request.

4. Serve as the focal point for community outreach and report back to the community as a whole on environmental clean-up issues.
5. Ensure that community issues and concerns relating to clean-up are included in the meeting agenda and such issues receive substantial discussion and deliberation at meetings.
6. Encourage Community Members to participate at all meetings in an open and constructive manner.
7. Represent the Presidio RAB at functions and events.
8. Attend certain Project Status or equivalent meetings, and solicit other Community Members to attend such meetings.
9. Serve as the principal liaison on behalf of the Community Members between the Lead Agency, the appropriate regulatory agencies and the Community Members.
10. When requested by the Agency Co-Chair, meet and confer with him or her regarding specified problems, issues or questions, but this shall not be construed as authorizing the Community Co-Chair to make any decision or take any action binding on the RAB without approval by vote of the RAB members as provided in these Bylaws.
11. Appoint committee members as necessary.
12. Name a "Temporary Community Co-Chair" to perform the duties of the Community Co-Chair during an absence of the Community Co-Chair, provided that such a substitute shall not serve as Temporary Community Co-Chair for longer than 30 days.

V-E. DUTIES OF THE ALTERNATE COMMUNITY CO-CHAIR: If a majority of Community Members at a regular monthly RAB meeting shall vote to add an Alternative Community Co-Chair as an officer of the RAB, nominations, election and term of service of such an officer shall be the same as those applicable to the Community Co-Chair. The duties of an Alternate Community Co-Chair, if elected, shall be to support the RAB and the Community Co-Chair, and to serve in the Community Co-Chair's absence by performing the Community Co-Chair's duties as set forth above in section V-D.

V-F. DUTIES OF THE AGENCY CO-CHAIR: In order to support the activities of the RAB, the Lead Agency will make best efforts to perform the following duties as administered by the Agency Co-Chair:

1. In close coordination with the RAB Community Co-Chair, prepare and distribute a meeting notice and agenda prior to each regular and special meeting.
2. Organize and provide the necessary administrative support for regular and special meetings of the RAB and of its committees. Provide for a regularly available point of contact, such as a public participation specialist or equivalent administrative staff, for RAB support. For regular and special RAB meetings, supply an appropriate meeting room, a sound system, and various support materials (name tags, name markers, podium, overhead projector, slide projector, as requested). For committee meetings, supply an appropriate meeting room.
3. Provide a complete, corrected transcript of regular monthly and special RAB meetings and ensure that Community Members have timely access to the corrected transcript.

4. Arrange for technical support as requested by the RAB and as agreed upon by all parties; organize the necessary administrative and technical support for working groups approved by the RAB.
5. Provide documents related to the PSF environmental clean-up to the RAB and its committees and make such documents available to the public at public meetings and information repositories.
6. Coordinate the updates and progress reports given at each regular RAB meeting. Keep the community involved and informed on environmental clean-up efforts. Provide and mail a packet of handout materials to absent members as requested following each regular and special meeting.
7. Coordinate the organization and maintenance of the administrative record and information repositories and ensure that official information repositories have updated and current documents available for public review. Provide an information repository that is easily accessible to the public at the Presidio of San Francisco. The repository should contain at a minimum, those current documents relating to the environmental clean-up of the PSF (draft and final technical documents, proposed and final plans, etc.) Repository administrators shall be instructed not to allow the documents to be removed from the premises.
8. Provide Community Members with access to certain Project Status and other equivalent meetings. Provide prior notice to the Community Co-Chair and other regular RAB attendees to such meetings. Provide a copy of handouts and other distributed materials to the Community Members at the meeting. Ensure that the Community Members have the opportunity to participate in the restoration decision-making process.
9. When requested by the Community Co-Chair or Alternate Community Co-Chair, meet and confer with them regarding specified problems, issues or questions.
10. Maintain a mailing list of community neighborhood associations, local media, local environmental groups, local homeowners associations, diverse ethnic and economic groups, community officials, civic groups, interested individuals affected by the closure and conversion of the PSF, and other persons, agencies or interest groups that have expressed an interest in the clean-up effort. The RAB will not release the names, addresses and phone numbers of individuals without the person's prior consent. Maintain a current roster of RAB Members and provide an updated roster quarterly to RAB Members.
11. Provide for public participation by public announcements in local newspapers (including paid notices as necessary) to announce date, time and location of RAB meetings, to solicit new Community Members, and to announce the availability of documents. Provide for news releases, fact sheets, letters, site tours, special focus briefings, etc. as needed, in consultation with Community Members.

V-G. RECALL: The Community Co-Chair and Alternate Community Co-Chair may be recalled by the Community Members pursuant to the following procedure:

1. Community Members may prepare a written petition to recall the incumbent Community Co-Chair or Alternate Community Co-Chair, which must be signed by a minimum of 40% (rounded to the next higher whole number) of Community Members. The signed petition shall be submitted to the Community Co-Chair and Agency Co-Chair for inclusion in the next regular RAB meeting's agenda.

2. At the next regular RAB meeting, the Facilitator will open the recall petition for discussion according to the meeting procedures in these Bylaws. Discussion on the recall issue is restricted to Community Members. The incumbent Co-Chair shall be provided an opportunity to defend his or her conduct. On conclusion of the discussion on the recall petition, a motion may be made by a Community Member to recall the incumbent Co-Chair. Only the Community Members may vote on a motion for recall. To recall the officer, the motion to recall must be approved by a two-thirds vote of the Community Members present at the meeting.
3. If the Community Co-Chair or Alternate Community Co-Chair is recalled, an election to elect a new Co-Chair shall be held as soon as feasible according to the election procedures in these Bylaws. By a majority vote, Community Members may appoint a Temporary Community Co-Chair to perform the duties of a recalled Community Co-Chair until a new Community Co-Chair has been elected.

Article VI. COMMITTEES

VI-A. GENERAL PROVISIONS: Committees shall conform to the following provisions:

1. **COMMITTEE MEMBERSHIP:** Any RAB Member may volunteer to serve on any committee. The Community Co-Chair shall appoint members of standing committees and a chairperson for each committee shall be chosen by majority vote of all committee members. Agency Members may participate in committee discussions.
2. **SPECIAL COMMITTEES:** The RAB, by majority vote of members present at a meeting, may form special committees, working groups or other select committees of interested members and technical advisors, to perform specific tasks as determined by the RAB. The Community Co-Chair shall designate an initial meeting time and place for newly formed committees.
3. **RESIGNATIONS & REPLACEMENTS:** Committee members may resign at any time by informing the Chairperson of the resignation. In the event of a resignation, the Community Co-Chair may appoint a replacement committee member.

VI-B. STANDING COMMITTEES: The following standing committees are established. These standing committees shall meet at times and places designated by the committee members or Chairperson. Meetings shall be open to all RAB Members and to other persons invited by the committee to attend.

1. **PLANNING:** This committee shall discuss current and future clean-up issues, schedules and budgets, and plan for the RAB review, evaluation, discussion and comment on these issues. The Planning Committee prepares for the following regular RAB meeting. The Planning Committee will convene regularly on the fourth Tuesday of the month, at 7:00 PM in a location determined by the Community Co-Chair.
2. **RESTORATION & COMPLIANCE:** This committee shall review, inquire, evaluate, and respond to the RAB on draft and final documents, status reports, schedules, budgets and proposed/final plans related to the characterization, analysis, schedule, and restoration action on the Presidio. The subjects considered may include, but are not limited to, issues defined by CERCLA along with the following: asbestos-containing materials, lead-based paint, radiological-biological-chemical substances, landfill contents, unexploded ordnance, pesticides, herbicides,

military batteries, magazines, missile facilities, above-ground storage tanks, underground storage tanks, and other environmental issues of concern to the community.

3. **OUTREACH & EDUCATION:** This committee shall assist the Agency Co-Chair in informing the community, using local media outlets, of meeting announcements and agenda. The committee shall assist the Agency Co-Chair in the publication of a newsletter, fact sheets, internet site and other items to inform the community of the results of RAB reviews and evaluations of draft and final documents, status reports, and proposed and final plans relating to the clean-up effort.
4. **RULES:** This committee shall develop appropriate organization, ground rules and operating procedures to assure open, efficient and productive operation of the RAB. The purpose of the Rules Committee shall be to support the principles and apply the provisions of the Charter & Bylaws. Should the RAB authorize amendment of the Charter & Bylaws, the Rules Committee will prepare the amendment for presentation and approval as provided in these Bylaws.
5. **MEMBERSHIP:** This committee shall review and evaluate each application for membership and determine whether to recommend the applicant for membership. If there are unfilled community membership positions that the Membership Committee determines should be filled, the Membership Committee shall submit to the full membership the names and qualifications of those applicants it has approved. The Membership Committee shall review and evaluate each nominee for Facilitator and determine whether to recommend the candidate for approval. The Membership Committee shall review and decide whether to grant Leaves of Absence.

Article VII. MEETINGS

VII-A. ORGANIZATION: The RAB shall hold regular meetings to facilitate public participation and the review, evaluation and comment on environmental restoration program issues. The following meetings serve to promote the business of the RAB:

1. **RAB MEETINGS:** The regular monthly RAB meeting shall be open to the public. The regular monthly meeting will convene on the second Tuesday of each month at 7:00 p.m. at a public place within the Presidio of San Francisco, said place to be determined each month by the officers of the RAB.
2. **SPECIAL MEETINGS:** Subject to approval by a majority of all RAB Members present at a meeting, special meetings may be scheduled to provide additional presentation or discussion on pertinent PSF clean-up issues. Special meetings shall be open to the public and conform to the notification requirements and procedures for meetings set forth in these Bylaws.
3. **COMMITTEE MEETINGS:** The focus and purpose of committee meetings shall be authorized by a majority vote of Community Members present at a meeting. Committee meetings shall be open to all RAB Members and invited participants. Each committee shall determine, by majority vote of committee members present, the schedule and agenda of committee meetings. The Planning Committee will convene regularly on the fourth Tuesday of the month, at 7:00 PM in a location determined by the Community Co-Chair.

VII-B. MEETING NOTIFICATION: The following notification requirements apply to the meetings provided for by these Bylaws:

- 1) **RAB MEETINGS:** A meeting announcement and agenda will be provided to each member at least three working days prior to the regularly scheduled monthly meeting. Meeting announcements to members may be provided by phone call, e-mail, fax, mail or any combination thereof, as long as all members receive timely notice. Announcements of regular meetings shall be included in the "Presidio Post" publication, Trust internet website and in such other media as the RAB Community and Agency members shall, from time to time, select.
 - 2) **SPECIAL MEETINGS:** Special meeting announcements (giving the date, time and place of the special meeting along with a general statement of the purpose of the meeting) shall be provided to each member at least three working days prior to the special meeting. Special meeting announcements may be provided to members by phone call, e-mail, fax, mail or any combination thereof, as long as all members receive timely notice.
 - 3) **COMMITTEE MEETINGS:** Committee meeting location, date, time, and place shall be announced to RAB Members at the previous regular monthly RAB meeting, previous committee meeting or at least three working days prior to the scheduled committee meeting. Committee meeting announcements may be given verbally at meetings or by phone call, e-mail, fax, mail or any combination thereof.
- VII-C. AGENDA:** An agenda shall be prepared by the Community Co-Chair for each regular and special RAB meeting. The Agency Co-Chair shall propose items for inclusion in the agenda to the Community Co-Chair. The Community Co-Chair shall solicit input from Community Members on items and issues for presentation, discussion, review, and comment for inclusion in the agenda. Although the length of the meeting must be judiciously controlled, no reasonable request for inclusion of an agenda item shall be refused. The Community Co-Chair shall make the final determination of what shall be included in the agenda and shall prepare the final agenda in sufficient time for it to be sent and received by the Agency Co-Chair and all Community and Agency RAB members at least three working days prior to the RAB meeting
- VII-D. FACILITATOR:** The RAB may engage a Facilitator from outside the RAB or any member of the RAB. The Membership Committee shall evaluate Facilitator candidates, select a candidate and present the nominee for Facilitator at a regular RAB meeting. The appointment of a Facilitator shall be subject to the approval of a majority of the RAB Members present at a regular meeting. The Facilitator is to focus on the process of the meeting and seek an orderly and productive meeting, under the rules and procedures in these Bylaws. The participation and voting rights of the Facilitator shall be determined by a majority of the members present. The Facilitator serves at the pleasure of the RAB and may be terminated by a majority vote of the members present at a regular meeting.
- VII-E. RULES OF ORDER:** Robert's Rules of Order shall informally guide the conduct of regular and special meetings unless in conflict with these Bylaws, in which case the Bylaws shall control. These Bylaws do not require a strict interpretation of Robert's Rules of Order to govern the conduct of meetings.
- VII-F. QUORUM:** A quorum for the transaction of official business shall be 51 percent of the Community Members, rounded upward to the next whole number. For example, if there are 22 Community Members then $0.51 \times 22 = 11.2$ or 12 Community Members are required to be present for a quorum.
- VII-G. RULES ON VOTING & MOTIONS:** The following procedures apply to voting and motions at regular and special RAB meetings:

1. Prior to a vote by either the entire Board or only the Community Members, a motion should be clearly stated by a member and seconded by a different member. The Co-Chair or Facilitator shall announce the motion to the assembly ensuring that members clearly understand the question.
2. Only one vote is allowed for each member including the co-chairs. A member may assign his or her voting proxy by a written statement delivered to the Community Co-Chair or Facilitator.
3. The number of votes required to approve a motion shall be calculated based upon the number of members entitled to vote on that issue who are present at the meeting at which the vote is being taken. The term "whole" shall mean all members (i.e. Agency Members and Community Members) present in person or by valid proxy at the meeting. The term "community" shall mean those Community Members who are present in person or by valid proxy at the meeting. Voting at meetings shall be pursuant to the following requirements:

<u>ISSUE</u>	<u>WHO VOTES</u>	<u>REQUIRED VOTES</u>
Adjourn	whole	majority
Agenda (approval)	community	majority
Bylaws (amending)	whole	2/3
Clean-up Issues (advice)	community	majority
Censure of Member	whole	2/3
Committee	community	majority
Community Co-Chair (elect)	community	majority
Community Co-Chair (recall)	community	2/3
Facilitator (authorize & appoint)	whole	majority
Facilitator (terminate)	whole	majority
Facilitator (participation rights)	whole	majority
Membership (new appointment)	community	2/3
Membership (reinstatement and leaves)	community	majority
Motion (amend and accept)	community	majority
Minutes (authorization)	community	majority
Minutes (amend & approval)	community	majority
Special Meetings	whole	majority

VII-H. ORDER OF BUSINESS: In addition to other applicable provisions of these Bylaws, the order of business at regular and special meetings shall, as far as is appropriate, be as follows and shall be presided over by the Community Co-Chair or designated Facilitator:

1. Announce the commencement of the meeting and determine the existence of a quorum. If a quorum is not present, official votes may not be taken, but the meeting may continue if a majority of the Community Members present agrees to do so. Official votes may occur later in the meeting if a quorum is achieved.
2. Review meeting procedures (rules, motions, and voting) as necessary for the orderly conduct of the meeting.
3. Request that new members, visiting agency regulators, and technical advisors present at the meeting identify themselves for the record.

4. Open the published agenda for the meeting to discussion by members. Request any motions of addition, deletion, or other modification to the published agenda. Proceed with the meeting's order of business including any modifications approved by a majority vote of Community Members present.
5. Request announcements from members or the public.
6. Review old business:
 - a. RAB Members shall review and approve the last meeting minutes (if minutes were prepared).
 - b. Discussion and comment on matters, issues, or tasks discussed but not resolved at past meetings.
7. Open for new business by the discussion and comment on agenda items as published and modified.
8. Present committee reports and announcements of upcoming committee meetings by the Community Co-Chair and/or representative of each active committee.
9. Review technical presentations, discussions and comments on agenda items as published and modified.
10. Present status and progress reports of ongoing clean-up activities, important and relevant decisions, budget and scheduling, and the anticipated dates of the release of related documents as provided by the Agency Co-Chair or representative.
11. Invite agency representatives to provide a status report of agency activities and decisions.
12. Invite members of the public to provide comment.
13. Request agenda items for the next scheduled meeting.
14. Present motion to adjourn subject to approval by a majority of members present.

VII-I. DISCUSSION AND COMMENT: For each agenda item, discussion and comment shall be entertained on each scheduled topic. The following procedures shall govern the orderly conduct of discussion and comment at regular and special RAB meetings:

1. Discussion and comment will normally be accepted only on the current agenda item in the following sequence of speakers: members, technical advisor(s), and the public. The Community Co-Chair or Facilitator shall judiciously limit the duration of discussion and comment to allow the remaining order of business to be completed.
2. During discussion and comment periods, a speaking time of no more than five minutes per person is essential to a fair, open, orderly and productive debate. When the issue or topic is of such a nature that more than five minutes per person may be necessary, the length of each speaker's remarks and the duration of the discussion and comment period shall be determined by a majority vote of RAB Members present.

VII-J. TRANSCRIPT OF MEETINGS: The Agency Co-Chair shall make best efforts to provide a complete, corrected transcript of each regular and special RAB meeting. The meeting transcript

shall be the official record of the meeting. The Agency Co-Chair shall maintain the meeting transcripts in the official information repository as part of the Administrative Record. The transcripts shall be available for inspection at the repository during normal business hours with a goal of being made available no later than two weeks following the meeting.

VII-K. MINUTES OF MEETINGS: At the discretion of a majority vote of Community Members, minutes of regular and special RAB meetings may be prepared. The minutes shall not replace the complete, corrected transcript of the meeting. If minutes are prepared, the following procedures apply:

- 1. Preparation of Minutes** - Minutes of regular or special RAB meetings may be prepared by a designated member. If no member agrees to prepare minutes, then an outside person may be appointed to prepare minutes as approved by a majority vote of Community Members. Minutes shall reflect an accurate and objective summary of motions, discussion, debate, and voting on procedural and initiative matters.
- 2. Authentication of Minutes** - Minutes shall be signed by the member or person who prepared the minutes and by the Community Co-Chair. If, on approval of the minutes at the next meeting, changes are directed by the RAB, then an addendum to the minutes will be prepared reflecting such changes and this addendum shall be signed by the Community Co-Chair and attached to the approved minutes.
- 3. Disposition of Minutes** - Copies of the minutes shall be provided to each member at the regular RAB meeting following approval. Approved copies of minutes, with addendum if any, will be made available to the general public present at meetings and will be placed in information repositories; provided to regulators upon request and made a part of the official Administrative Record.

Article VIII. ANTI-DEFICIENCY ACT

Nothing in these Bylaws shall be construed to require the obligation, transfer, or payment of funds by any federal government entity in violation of the Anti-Deficiency Act or any other laws.

Article IX. AMENDMENT

VIII-A. VOTING: Amendment to the Charter & Bylaws may be made by a two-thirds vote of the voting members who are present, in person or by valid proxy, at the regular RAB meeting during which adoption of the amendment is brought to a vote.

VIII-B. PROCEDURE: The procedure for amending the Charter & Bylaws is as follows:

- 1.A proposed amendment shall be referred to the Rules Committee for writing. On completion of work by the Rules Committee, the Committee Chairperson shall submit the proposed amendment to the Community Co-Chair and Agency Co-Chair.

2. The Co-Chairs shall distribute copies of the proposed amendment to all members and shall place the amendment on the agenda for a regular meeting to be held at least 14 days, but not more than 60 days, after distribution of the proposed amendment to all members.
3. The proposed amendment shall be introduced at the meeting by a member of the Rules Committee who shall move for the adoption of the proposed amendment. The RAB shall debate the motion under the procedures for discussion and comment in these Bylaws. The proposed amendment must be approved by a two-thirds vote of those voting members present, in person or by valid proxy. The amended Charter & Bylaws shall become effective on the date of approval by the RAB.
4. The amended Charter & Bylaws shall be authenticated by being signed by the Community Co-Chair and Agency Co-Chair; filed as the approved record copy of the Charter & Bylaws, displayed on the Trust internet website, and retained as part of the Administrative Record.

Article X. AUTHENTICATION

- IX-A. PROCEDURE:** The purpose of authentication is to verify the official governing version of the Charter & Bylaws. The Community Co-Chair and Agency Co-Chair shall sign and date the certificate set forth below to evidence the adoption of the amended Charter & Bylaws by two-thirds vote of the voting members present, in person or by valid proxy, at a regularly called RAB meeting, and said amended Charter & Bylaws having become effective on the date of said vote.
- IX-B. DISPOSITION:** The approved record copy of the amended Charter & Bylaws shall be retained as part of the Administrative Record. Copies of the amended Charter & Bylaws shall be provided to each RAB member. A copy will also be placed at the official information repository and displayed on the Trust internet website.
- IX-C. SIGNATURE & DATE:** The following official signatures verify that the above amended and restated Charter & Bylaws was approved by a unanimous vote of voting members present, in person or by valid proxy, at the official monthly RAB meeting on October 14, 2003, the effective date of the amended Charter & Bylaws.

Mark Youngkin, Community Co-Chair

Date

Craig Cooper, Agency Co-Chair, Presidio Trust

Date

End of Charter & Bylaws



THE PRESIDIO OF SAN FRANCISCO RESTORATION ADVISORY BOARD



FINAL REPORT

Twenty Years of Public Participation 1994-2014
in the Environmental Cleanup of Our New National Park

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